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GENERAL KNOWLEDGE

20 26

Manohar Pandey

₹65

SHIVAM RAI

2025

GENERAL KNOWLEDGE

20 26

Manohar Pandey — 2025



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- Who's Who?

- The Waqf (Amendment) Act come into force on 8th April, 2025. The Lok Sabha and the Rajya Sabha passed the bill on 3rd April, 2025 and 4th April, 2025 respectively. The President Draupadi Murmu given her ascent to the bill on 6th April, 2024.

National Perspectives

- Madhav National Park in Madhya Pradesh has been declared 58th Tiger Reserve under Project Tiger in India on 9th March, 2025. It is the 9th Tiger Reserve in Madhya Pardesh.

- The Bharatiya Janta Party (BJP) won the Delhi Legislative Assembly election held on February, 2025 and result declared on 8th February, 2025.

Rekha Gupta sworn-in as the Chief Minister of Delhi on 20th February, 2025.

- Presidents rule has imposed in Manipur on 13th February, 2025 under the provision of Article 356 after resignation of CM Biren Singh.

The theme of 76th Indian Republic Day was Swarnim

Bharat : Virasat aur Vikas. Its Chief

Guest was Prabowo

Subianto, President of Republic of Indonesia.



76th Republic Day

- On 29th January, 2025, Indian ISRO marked milestone by successfully completing its **100th launch** (NVS-02 satellite) from the Satish Dhawan Space Centre in Sriharikota by GSLV-F15.

- On 28th January, 2025, India has celebrated achievement with **Indore** (MP) and **Udaipur** (Rajasthan) becoming the first cities from the country to be accredited as wetland cities under the Ramsar Convention.

- On 27th January, 2025, the Directorate General of Foreign Trade (DGFT) has launched the enhanced **Certificate of Origin** (eCoO) 2.0 system.

- On 21st January, 2025, The Ministry of Electronics and Information Technology (MeitY) has introduced **Entity Locker** developed by the National e-Governance Division (NeGD).

- On 15th January, 2025, PM Narendra Modi commissioned three significant naval assets-INS **Surat**, INS **Nilgiri** & INS **Vagsheer** at the Mazagon Dock Shipbuilders Ltd. (MDL) in Mumbai.

- 18th Pravasi Bharatiya Divas Convention 2025 was held in Bhuvaneshwar, Odisha. Its theme was 'Diaspora's Contribution to Viksit Bharat'.

- India's first **Green Hydrogen Hub (GHH) Project** was launched at Pudimadaka, Visakhapatnam. It aims to increase green hydrogen production capacity in India.
- **Air India** has become the first airline in India to provide free Wi-Fi in its flights.
- National Mission of Edible Oils was launched by the Government of India for the period 2024-25 to 2030-31.
- **West Bengal** declared as the **top destination for heritage tourism** by UNESCO on 2nd December, 2024.

Cruise India Mission was launched by the Central Government from Mumbai (Maharashtra) on 2nd December, 2024 with the aim of promoting cruise tourism in India.

Kisan Kavach India's first indigenously built Anti-Pesticide Suit unveiled by Ministry of Science and Technology on 20th December, 2024.

This suit will enable the protection of the farmers from the harmful effect of the pesticides.



- **Rural India Festival** was held in January 2025 at Bharat Mandapam, New Delhi. The theme of the festival is 'Building a Capable Rural India for Developed India 2047'.
- The Government of India has revised the **base year** for calculation of **GDP** (Gross Domestic Product) from 2011-12 to 2022-23.

Union Budget 2025-26

Finance Minister Nirmala Sitharaman presented the Union Budget 2025-26 in Parliament on 1st February, 2025.

Major Highlights

- ₹98,311 crore allocation for developing, maintaining and improving the country's healthcare system.
- New income tax bill to simplify compliance & provide relief to middle class. The bill also proposes zero tax for income up to ₹12 lakhs (excluding capital gains).
- **Kisan Credit Card** loan limit will increase to ₹5 lakh.
- **Jan Vishwas Bill 2.0** introduced to further decriminalise business laws.
- ₹20,000 crore allocation for Nuclear Energy Mission.
- **e-Shram portal** revamped to benefit of ₹1 crore gig workers.
- **PM Gati Shakti data** is now accessible to the private sector.
- Prime Minister Dhan Dhaanya Krishi Yojana announced in the Union Budget 2025-26.
- 50,000 **Atal Tinkering Labs**, Bhartiya Bharat Pustak scheme, & IIT expansion to drive India's innovation boom.
- **Heal in India** initiative to boost medical tourism & healthcare infra.
- 2 self-occupied properties in place of 1 can be valued at 'Nil'.

- The deadline to file updated tax returns has been extended from 2 years to 4 years.
- The threshold limit for TCS on LRS remittances has been increased from ₹7 lakh to ₹10 lakh.
- The TDS threshold limit on rent has been raised to ₹6 lakh.

Economic Survey 2024-25

It was presented on 31st Jan, 2025. It represents Government's vision of Viksit Bharat 2047.

Major Highlights

- India's GDP to grow between 6.3%-6.8% in FY 2025-26.
- India's Real GDP to grow between 6.4% in FY 2025-26, driven by agriculture and services while manufacturing faces challenges.

Sectorwise Performance

- **Agriculture** 3.8% growth in FY-25, driven by record kharif production and strong rural demand.
- **Industry & Manufacturing** 6.2% growth in FY-25, with manufacturing slowing due to weak global demand.
- **Services** Fastest growing sector at 7.2% in FY-25 led by information technology, finance and hospitality.
- India remained the top global recipient of remittances helping contain the current account deficit at 1.2% of GDP.
- Overall, India's economic outlook remains positive, driven by domestic resilience and structural reforms though risks from global uncertainties persist.

International Perspectives

- Prime Minister Narendra Modi visited **Thailand** and **Sri Lanka** on 2nd April to 5th April, 2025. In Thailand PM participated in 6th BIMSTEC summit.
- The earthquake struck Myanmar and Thailand on 28th March, 2025 had devastating effects. The magnitude of earthquake was 7.5. Operation Brahma was launched by the government of India for humanitarian aid.
- India and New Zealand signed **Five agreements** on 18th March, 2025 including on defence and agreed to launch a negotiation on Free trade agreement to boost the trade ties.
- Munich Security Conference 2025 held in February 2025 was marked by discordant differing priorities among attendees.
- On 28th January, 2025, the **Africa Energy Summit** took place in Dar es-Salam, Tanzania. This summit was part of 'Mission 300' a World Bank and African Development Bank initiative. The goal is to provide electricity to 300 million people in Sub-Saharan Africa by 2030.
- **New York** (USA) has become the first city in the world to implement **congestion pricing** on 6th January, 2025. They made it the first city in US to charge a toll for vehicles entering during peak traffic hours.

Indian Ocean Conference 2025

commenced at Muscat in February, 2025.

Indonesia became a full member of the **BRICS group** on 7th January, 2025. With this, the number of member countries of BRICS has increased to 10.



- Armenia, in November 2024 became the 104th full-time member of the **International Solar Alliance** (ISA). It is the first country from the Caucasian region to join the ISA.
- **COP-29** was held in Baku (Azerbaijan) between 11-22th November, 2024.
- The 19th G-20 summit was held in Rio de Janeiro (Brazil) between 18-19th November, 2024. The theme of this summit was 'Building a Just World and Sustainable Planet'.

National

- **Nidhi Tiwari** has been appointed as the new private Secretary of Prime Minister Narendra Modi on 1st April, 2025.
- **Tuhin kanta Pandey** took Charge as the Chairman of Securities and Exchange Board of India (SEBI) on 1st March, 2025.
- Rekha Gupta sworn-in as fourth woman Chief Minister of Delhi. She is the first time MLA from Shalimar Bagh in Delhi Legislative Assembly.
- **Gyanesh Kumar** appointed as the 26th Chief Election Commissioner of India.
- **Amir Tamim Bin Hamad Al Thani** Emir of Qatar visited India on 18-19th February, 2025.

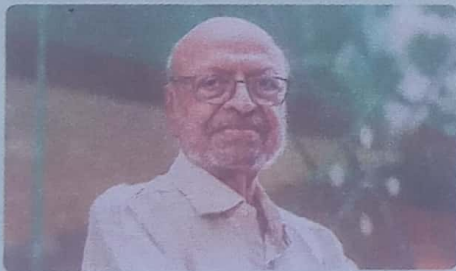
Notable Personalities

- **V. Narayanan** has been appointed as the Chairman of Indian Space Research Organisation (ISRO). He has replaced S. Somnath as the Chairman of ISRO.
- **Rajagopala Chidambaram** died on 4th January, 2025 in Mumbai. He was the architect of the Indian nuclear programme and the second scientific advisor (2002-2018).
- **Dr. Manmohan Singh** passed away on 26th December, 2024 in Delhi. He was the Prime Minister for continuous two terms for the years from 2004-2014.



- **Zakir Husain** died on 15th December, 2024 in San Francisco (USA). Zakir Husain had won Grammy awards four times. He belonged to the **Punjab Gharana** of Tabla and was awarded Padma Vibhushan in the year 2023.
- **Madan B. Lokur** has been appointed as the Chairman of the United Nations' Trusteeship Council (UNTC). He was a Supreme Court judge from 2012-18.

Shyam Benegal died on 23rd December, 2024 in Mumbai. Benegal started a new era in films in the form of parallel cinema. Benegal was awarded the Padma Bhushan in 1991 and the Dadasaheb Phalke Award in 2007. He was a Rajya Sabha member (2006-2012) and the only film producer-director to receive the National Film Award 8 times.



- **MS Krishna** died on 10th December, 2024 in Bengaluru (Karnataka). He was the Foreign Minister (2009-2004) in Dr. Manmohan Singh's cabinet. He was also the Chief Minister of Karnataka between 1999-2004.
- **Bibek Debroy** passed away on 1st November, 2024 in New Delhi. He was the Chairman of the Prime Minister's Economic Advisory Council in the year 2017-18. The renowned economist Bibek Debroy was awarded the Padma Shri in the year 2015.
- **K. Sanjay Murthy** was appointed as the new CAG on 18th November, 2024. Sanjay Murthy, selected for the civil service in the year 1988, replaced GC Murmu as CAG.
- **Sanjeev Khanna** assumed office as the 51st Chief Justice of the Supreme Court on 11th November, 2024. He was appointed as a Supreme Court Judge in 18th January, 2019.

International

- **Gunter Blossl** has been awarded the Stockholm Water Noble Prize 2025. His work was transformed the understanding of floods.
- **Sunita Williams** and **Butch Wilmore** have returned to Earth on 18th March, 2025 after spending 9 months and 14 days in International Space Station (ISS).
- **Mark Carney** Sworn-in as the new prime Minister of Canada on 14th March, 2025 ending Justin Trudeau's nearly 10 year Tenure.

- **Donald Trump** was sworn in as the 47th President of the United States on 20th January, 2025. He won the presidential election by defeating Kamala Harris. Earlier, he was also the US President between 2016-20.



- **Sriram Krishnan** has been appointed as the senior policy advisor on Artificial Intelligence in the White House by the newly elected President of USA, Donald Trump.



- **Kristjin Frostdottir** is elected as Iceland's youngest Prime Minister in December 2024. He belongs to the Social Democratic Alliance political party.

- **Jimmy Carter** died on 29th December, 2024 at the age of 100. He was the 39th President of the USA [1976-1980].



- **Javier Milei** (current President of Argentina) was granted Italian citizenship in December 2024. Milei is the first person to acquire citizenship of another country as President.

Important Sites and Places

National

Keslapur Village (Telangana)	The Nagoba Jatara is an important tribal festival celebrated by the Mesram clan of Adivasi Gonds in Keslapur village, Telangana. It is eight day event started on 28th Jan to 4th Feb, 2025 and is regarded as the second largest Adivasi fair in India.
Prayagraj (UP)	Mahakumbh was organised between 13th January and 26th February, 2025. Prayagraj is also known as Sangam city, where the Ganga and Yamuna rivers meet.
Jammu	On 6th Jan, 2025, PM Narendra Modi inaugurated the 59th Indian Railways in Jammu. Jammu was separated from Ferozepur Division and made a new division.
Kanyakumari (Tamil Nadu)	India's first glass-sea bridge was inaugurated on 1st January, 2025. This bridge connects the Thiruvalluvar statue and Vivekananda Rock Memorial.
Nagpur (Maharashtra)	India's first bio bitumen national highway to be launched on 29th December, 2024.
Indore (Madhya Pradesh)	Indore International Airport will be declared India's first zero wastage airport on 27th December, 2024.
Masaligaon (Gujarat)	In December 2024, it became the country's first border village to run on solar energy.

International

California (USA)	The forest fire in California (USA) spread to the residential areas of Los Angeles city in January 2025, due to which many buildings related to Film City (Hollywood) were destroyed by the fire.
Paris (France)	The 3rd Artificial Intelligence (AI) Summit 2025 was held in Paris, the capital of France, on 21st-22nd January, 2025. The theme of this conference was 'future trends: Forecasting the Next Wave of AI Innovation.
Greenland (Denmark)	In December 2024, the world's largest lake (11,500 ft) was discovered beneath the Denmark Strait. This lake confirms that the area was once landlocked and shoreless.
El Alto (Bolivia)	The world's tallest nuclear research reactor was established here on 27th October, 2024. This nuclear research reactor has been established with the help of Russia.

Schemes/Campaigns/Programmes

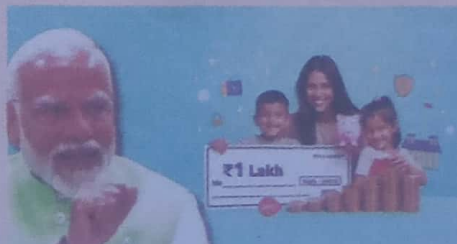
PM Dhan-Dhaanya Krishi Yojana (10th February, 2025)

This scheme was launched in Union Budget-2025 by Finance Minister Nirmala Sitharaman on 1st February, 2025. The scheme Will cover 100 districts with low productivity.



Har Ghar Lakhpati Yojana (5th January, 2025)

Launched by **State Bank of India (SBI)**, this scheme is for the middle class, under which one can deposit a small amount (₹ 501) every month for a period of 3-10 years and accumulate a sum of ₹ 1 lakh (in 10 years).



Peculiarities

'Fasal Sakhi' initiative (4th January, 2025)	Launched by the Mira Bhayandar Municipal Corporation (MBMC) Maharashtra, the initiative aims to empower women entrepreneurs in the city.
Green GDP Initiative (4th January, 2025)	Launched by the Chhattisgarh State Government. This initiative integrates ecosystem services of forests into Green Gross Domestic Product (Green GDP).
Project Empowered Daughter'	This project launched by Delhi University (DU) aims to empower girl students who are orphans or whose family's annual income is less than ₹ 4 lakh by providing them laptops.
One Nation One Subscription (ONOS) Initiative (2nd January, 2025)	This initiative launched by the Central Government is in line with the broader vision of Developed India @2047, which aims to establish India as a global leader in innovation and research.
Sanjeevani Health Scheme (23rd December, 2024)	This health scheme launched by the Delhi Government will provide free healthcare services to citizens above 60 years of age.
No more Excuses Campaign (25th November, 2024)	Launched in collaboration with the Union Ministry of Women and Child Development and United Nations Women (UN Women), the campaign aims to mobilise public action against gender-based violence in India.
Tobacco Free Youth Campaign-2.0 (1st October, 2024)	This campaign launched by the Union Ministry of Health and Family Welfare aims to make the youth aware of the harmful effects of tobacco.
Atal Innovation Mission 2.0 (25th November, 2024)	Atal Innovation Mission (AIM) has been extended till 31st March, 2028. Its objective is to establish rural innovation centres and deep tech reactors.
New Consciousness Initiative for Change (23rd November, 2024)	The campaign aims to raise awareness against gender-based violence and empower communities.
National Mission on Edible Oils (4th October, 2024)	NMEO-Oilseeds mission has been launched for the period 2024-25 and 2030-33. Its budget is ₹ 10103 crores . The objective of this mission is to bring self-sufficiency in oilseed production in the next 7 years.
PM Vidyalakshmi Yojana (6th November, 2024)	This scheme has been started for the next five years from the year 2024-25. The objective of this scheme is to provide quality higher education. Its budgetary provision is ₹ 3600 crore .
Amrit Bharat Station Redevelopment Plan (3rd November, 2024)	The construction of Amrit Bharat stations was announced by the Railway Ministry. 1334 railway stations are to be redeveloped.

Apps/ Portals

<i>Apps/Portal</i>	<i>Details</i>
PM Internship (18th March, 2025)	Launched by Finance Minister Nirmala Sitharaman to promote employment, skilling and opportunities.
My Easi/SPEED-e (20th February, 2025)	My Easi launched by Central Depository Services Limited [CDSL] and SPEED-e launched by National Securities Depository Limited [NSDL].
SwaRail App (31st January, 2025)	Indian Railways has launched this Super App to provide one stop solution for passengers.

<i>Apps/Portal</i>	<i>Details</i>
Multilingual e-Shram Portal (8th January, 2025)	The Central Government has started the multilingual facility on this portal, which supports 22 languages.
Bharatpol Portal (7th January, 2025)	The IRA Portal developed by the Central Bureau of Investigation (CBI) aims to enhance international police cooperation through INTERPOL .
TEAM Initiative (28th January, 2025)	The Ministry of Micro, Small & Medium Enterprises (MOMSME) has launched initiative aimed at enhancing the digital presence of small business in India.
Amrit Gyan Kosh Portal (12th December, 2024)	Jointly developed by Capacity Building Commission and Karmayogi Bharat, this portal provides high quality training and resources on various subjects to government officials and employees.
Rashtra Parv Website and App (27th December, 2024)	This app, developed by the Ministry of Defence, provides information about events like Republic Day, Independence Day and Beating Retreat.
Suraksha Mobile App (23rd November, 2024)	The aim of launching this app developed by Indian Railways is to enhance the safety and security of passengers.
E-filing Portal (22nd November, 2024)	Developed by the National Consumer Disputes Redressal Commission , this portal provides an efficient and effective way to reach consumer related complaints to the consumer forum.
Anna Chakra and SCAN Portal (5th December, 2024)	Anna Chakra and SCAN (Subsidy Claim Application for NFSA) portal launched. It will act as a single window for verification and approval of subsidy claims.

Index/Reports

<i>Indices</i>	<i>Rank of India</i>	<i>Top Country</i>
Climate Risk Index 2025	6	1. Dominica 2. China 3. Honduras (Most affected)
Global Fire Power Index 2025	4	1. USA 2. Russia 3. China
Henley Passport Index-2024 (Released by Henley & Partners)	82	1. Singapore 2. Italy 3. Germany
Global Energy Transition Index 2024 (Released by World Economic Forum)	63	1. Sweden 2. Denmark 3. Finland
Climate Change Index 2025 (Germanwatch, New Climate Institute and Climate Action International)	10	1. Denmark 2. Netherlands 3. UK
Global Hunger Index (Kanrrn Worldwide and Welt Hunger Hilfe)	105	—
Asia Power Index 2024 (Logie Institute, Australia)	3	1. USA 2. China
Global Gender Gap Index 2024 (World Economic Forum)	129	1. Iceland 2. Finland 3. USA
AI Readiness Index 2024 (International Monetary Fund)	72	1. Singapore 2. Denmark 3. USA

Report

Report	Issued By	Findings
World Air Quality Report 2024	Swiss Company IIAir	■ India is the 3 in most Polluted Country in 2024.
India state of Report 2023 (released in Dec. 2024)	Forest Survey of India.	■ Total Forest and Tree Cover is 8, 27, 357 Sq. km. (25.17% of total Geographical Area)
Global Water Monitor Report, 2024	Team of Australia, Saudi Arabia, China, University of Germany	■ Average global temperature, 1.5°C above the industrial level ■ Increase in extremely dry months
Business Ready (B-Ready) Report, 2024	World Bank	■ Singapore (1st) ■ Reforms in India's trade and labour exchanges

Military Exercises

Name of the Exercise	Participants	Location
Bongo-Sagar-2025 (1st April-7th April, 2025)	India-Bangladesh	Bay of Bengal
VARUNA 2025 (March, 2025)	India-France	INS Vikrant
Dharma Guardian 2025 (February-March 2025)	India, Japan	Pokhran, Rajasthan
Exercise Cyclone (February, 2025)	India, Egypt	Pokhran, Rajasthan
Surya Kiran 2024-25 (31st December-13th January, 2025)	India, Nepal	Saljhandi, Nepal
Harimau Shakti 2024 (2nd-15th December, 2025)	India-Malaysia	Pahang, Malaysia
Winmax 2024 (4th-23rd November, 2024)	India-Vietnam	Ambala, Chandi Mandir
Vajra Prahar 2024 (2-22nd November, 2024)	India-USA	Idaho, USA
Kazind 2024 (30-13th October, 2024)	India-Kazakhstan	Auli, Uttarakhand
Yudh Abhyas 2024 (9th-22nd September, 2024)	India-USA	Maharaja Field Firing Range, Pokhran (Rajasthan)

Sports/Sportsperson

National

Sports Item	Winner
Women's Premier League (WPL) 2025	■ Mumbai Indians
2025 ICC Champions Trophy (19th February to in march, 2025)	■ India (Winner) ■ New Zealand (Runner Up)
Ranji Trophy 2024-25 (Final-26 Feb, 2025)	■ Vidarbha (Winner) ■ Kerala (Runner Up)
Vijay Hazare Trophy 2024-25 (Final 18th January, 2025)	■ Karnataka (Winner) ■ Vidarbha (Runner Up)

<i>Sports Item</i>	<i>Winner</i>
Santosh Trophy 2024-25 (Final 31st December, 2024)	- West-Bengal (Winner) - Kerala (Runner Up)
World Rapid Chess Championship 2024 (26-28th December, 2024)	- Koneru Humpy (women's category) - Bolodar Murzin (men's division)
Border-Gavaskar Trophy 2024-25 (between 30th October, 2024- 5th January, 2025)	Australia (3-1) (Player of the Series Jasprit Bumrah)
Border-Gavaskar Trophy 2024-25 (between 30th October, 2024- 5th January, 2025)	Australia (3-1) (Player of the Series Jasprit Bumrah)
Syed Mushtaq Ali Trophy 2024-25 (23rd November to 15th December, 2024)	- Mumbai (Winner) - Madhya Pradesh (Runner-up)

International

<i>Sport Item</i>	<i>Winner</i>
Miami Open Tennis 2025 (18th-30th March, 2025)	- Men's Singles-Jakub Mensik - Women's Singles- Aryana Sebalenka
Brisbane International Tennis 2024 (27th December, 2024-7th January, 2025)	- Men's Singles-Jiri Lehka (Czech Republic) - Women's Singles-Aryana Seblenka (Belarus)
Australia Open, 2025 (Held at Melbourne from 12th-26th January, 2025)	- Singles Men's winner - Jannik Sinner - Women is singles-Madison keys

Sports Personalities

- Pankaj Advani** triumphs with 14th Asian Snooker Championship Title in Doha (Qatar) on 20th February, 2025.
- Jasprit Bumrah** has been honoured with the 2024 Sir Garfield Sobers Award for ICC Men's Cricketer of the Year Award and the ICC Men's Test Cricketer of the Year Award. In 2024, he picked 71 wickets with an average of 14.92 in 13 test matches.
- Smriti Mandhana** crowned ICC Women's ODI Cricketer of the Year for 2024. She scored 747 runs in 13 innings at an average of 57.86.
- a part of IPL 2025 from the Rajasthan Royals team.
- Lionel Messi** (football player) was awarded the United States' highest civilian honour 'Presidential Medal of Freedom' on 5th January, 2024. Messi is a player of the Argentina team, who has received the **Ballon d Or** award eight times.
- Maria Sharapova** got inducted into the International Tennis Hall of Fame along with the Bryan brothers on 28th October, 2024. Sharapova is a Russian tennis player.

D. Gukesh won the World Chess Championship 2024 defeating Ding Liren (China) in the final, becoming the second.



- Anhat Singh** won the Under-17 British Open Squash Championship title on 6th January, 2025. This is Anhat Singh's third title.
- Vaibhav Suryavanshi** became the first youngest player to be selected in the IPL (Indian Premier League) auction. He will be

Important Players

Mandeep Jangra	Won the World Boxing Association Super Featherweight title
Gurpreet Pal Singh	ACO World Chess Championship gold medal
Virat Kohli	Completed 9000 runs in Test cricket
Harmanpreet Kaur	National record in IWLf weightlifting event
Divyanshi	Gold Medal at ISSF Junior World Championship

Awards/Honours

Award	Awardee
25th IIFA Award	Best Film Laapataa Ladies Best Director Kiran Rao (Laapataa Ladies) Best Actor Kartik Aryan (Bhool Bhuliya) Best Actors Nitanshi Goel (Laapataa Ladies)
Padma Award 2025	Padma Vibhushan (7), Padma Bhushan (19), Padma Shri (113)
CK Nayudu Lifetime Achievement Award 2024	Sachin Tendulkar
Pravasi Bharatiya Samman 2025	27 NRIs honoured, (Usha Kumari (UK), Christine Carla-Kagalu (Trinidad-Tobago), Sharmila Ford (USA) etc.
National Panchayat Award 2024	45 institutions/organisations awarded
Indira Gandhi Award 2024	Michelle Bachelet (Chile)
Gangadhar National Award 2023-24	Prathiva Satpathy (Odia Poet)
Chandrashekharendra Saraswati Award 2024	S. Jaishankar
Chaudhary Charan Singh Awards 2024	Neerja Chaudhary
Dhyanchand Khel Ratna Award 2024	Manu Bhaker (Shooting), Harmanpreet Singh (Hockey), Praveen Kumar (Para-athlete), D. Gukesh (Chess)
Arjuna Award 2024	Annu Rani (Athletics), Neetu (Boxing), Salima Tete (Hockey), Abhishek (Hockey), Sukhjeet Singh (Hockey), etc.
Arjuna Award (Life Time)	Sucha Singh (Athletics), Murlikant Rajaram Petkar (Para-swimmer)
Dronacharya Award 2024 (Regular)	Subhash Rana (Para-shooting), Deepali Deshpande (Shooting), Sandeep Sangwan (Hockey)
Dronacharya Award 2024 (Lifetime)	S. Muralitharan (Badminton), Armando Agnelo Colaco (Football)
Rashtriya Khel Protsahan Puraskar	Physical Education Foundation of India

Award	Awardee
Maulana Abul Kalam Azad (MAKA) Trophy	Chandigarh University
Raja Man Singh Tomar Awards	Sanad Trust Indore
Sahitya Akademi Award 2024	Authors of 21 languages (Hindi- Gagan Gill)
82nd Golden Globe Awards	Best Film The Brutalist (Drama), Best Film-Emilia Perez (Comedy), Best Actress (Fernanda Torres), Best Actor (Adrian Brody)
Booker Prize, 2024	Samantha Harvey (for the novel 'Orbital')

Nobel Prize 2024

- **Physics** John J. Hopfield (USA), Geoffrey E.Hinton (UK)
- **Chemistry** David Baker (USA), John Jumper (USA), Demis Hassabis (UK)
- **Medicine** Victor Ambros (USA), Gary Ruvkun (USA)
- **Economics** Daran Acemoglu (USA), Simon Johnson (UK), James A. Robinson (USA)
- **Literature** Han Kang (South Korea)
- **Peace** Nihon Hidankya Group (Japan)

2025 Abel Prize	Masaki Kashiwara (Japan)
2025 Breakthrough Prize in Fundamental Physics	CERN Projects
Champion of the Earth Award 2025	Madhav Gadgil
JC Daniel Award	Shaji N. Karun
Presidential Medal of Freedom 2024	18 main celebrities (Hillary Clinton, Robert F. Kennedy)
Grand Commander of the Order of the Niger	Narendra Modi (Nigeria's highest civilian honour)
The Order of Wissam Mubarak al-kabir	Narendra Modi (Kuwait's highest honour)
Medal of Efficiency	Dr. Ravi Pillai (Bahrain's highest civilian award)
Sword of Honour Award	Ram Mandir, Ayodhya (UK Government Award)
Global Peace Award	Narendra Modi (Given by AIAM)

Who's Who?

President	Draupadi Murmu
Vice-President	Jagdeep Dhankar
Prime Minister	Narendra Modi
Chief Justice, Supreme Court	Sanjeev Khanna
Speaker, Lok Sabha	Om Birla
Deputy Chairman Rajya Sabha	Harivansh Narayanan
Attorney General	R. Venkataramani
Comptroller and Auditor General	K. Sanjay Murthy
Chief of Defence Staff	Anil Chauhan
Air Force Chief	Amarpreet Singh
Naval Chief	Dinesh Tripathi
Army Chief	Manoj Pandey

Secretary Advisor and Commissioner

Cabinet Secretary	Rajiv Gauba
Principal Secretary, Prime Minister	PK Mishra
Foreign Secretary	Vikram Misri
National Security Advisor	Ajit Doval
Principal Scientific Advisor	Ajay Kumar Sood
Chief Election Commissioner	Gyanesh Kumar

Intelligence/ Investigation Organisations

Director, Central Bureau of Investigation (CBI)	Praveen Sood
Secretary RAW (Research and Analysis Wing)	Ravi Sinha
Director General BIS Bureau of Indian Standards	Pramod Kumar Tiwari
Director General, Central Reserve Police Force (CRPF)	GP Singh
DG, CISF	RS Bhatti
Director General National Security Guard (NSG)	Brigu Srinivasan
Director SPG (Special Protection Group)	Alok Sharma
Director General Indo-Tibetan Border Police	Rahul Rasgotra
Director General NDRF	Piyush Anand
Chairman NITI Aayog	PM Narendra Modi
Vice-President NITI Aayog	Suman Bery
CEO NITI Aayog	BVR Subrahmanyam
Chairman UPSC (Union Public Service Commission)	Preeti Sudan

Chairman 22nd Law Commission	Rituraj Awasthi
Chairman National Backward Classes Commission	Hansraj Gangaram Ahir
Chairman 16th Finance Commission	Arvind Panagariya
Chairman, National Schedule Tribal Commission	Antar Singh Arya
Chairman, National Commission for Scheduled Classes	Kishore Makwana
Chairman, NHRC	V. Ramasubramanian
Chairman, National Commission for Protection of Child Rights	Priyank Kanungo
Chairman, National Commission for Minorities	Iqbal Singh Lalpura

State Union Territories of India

Name	Governor	Chief Minister
Andhra Pradesh	S. Abdul Nazir	N. Chandrababu Naidu
Arunachal Pradesh	Kaiwalya Trivikram Parnaik	Pema Khandu
Assam	Laxman Prasad Acharya	Himanta Biswa Sarma
Uttar Pradesh	Aanandiben Patel	Yogi Adityanath
Uttarakhand	Gurmeet Singh	Pushkar Singh Dhami
Odisha	Hari Babu Kambhampati	Mohan Charan Manjhi
Karnataka	Thawar Chand Gehlot	Siddaramaiah
Kerala	Rajendra Viswanath Arlekar	Pinarayi Vijayan
Goa	PS Sreedharan Pillai	Pramod Sawant
Gujarat	Acharya Devvrat	Bhupendra Patel
Chhattisgarh	Ramen Dakka	Vishnudev Sai
Jharkhand	Santosh Gangwar	Hemant Soran
Tamil Nadu	RN Ravi	MK Stalin
Telangana	Jishnu Dev Verma	A. Revanth Reddy
Nagaland	La. Ganesh	Neiphiu Rio
Punjab	Gulab Chand Kataria	Bhagwant Mann
West Bengal	CV Ananda Bose	Mamata Banerjee

Name	Governor	Chief Minister
Bihar	Asif Muhammad Khan	Nitish Kumar
Madhya Pradesh	Mangubhai C. Patel	Mohan Yadav
Maharashtra	CP Radhakrishnan	Devendra Fadanvis
Manipur	Ajay Kumar Bhalla	President's Rule
Meghalaya	CH Vijayashankar	Lalduhoma
Rajasthan	Haribhau Bagade	Bhajan Lal Sharma
Sikkim	Om Prakash Mathur	Prem Singh Tamang
Himachal Pradesh	Shiv Pratap Shukla	Sukhvinder Singh Sukhu
Haryana	Bandaru Dattatreya	Nayab Singh Saini
Tripura	Nallu Indrasen Reddy	Manik Shah

Union Territories

Andaman-Nicobar	Devendra Kumar Joshi (Lt. Governor)
Chandigarh	Banwarilal Purohit
Jammu & Kashmir	Umar Abdulla (CM) Manoj Sinha (Lt. Governor)
Delhi	Rekha Gupta (CM)/ Vinai Kumar Saxena (LG)
Dadra and Nagar Haveli and Daman and Diu	Praful Patel (Lt. Governor)
Puducherry	N. Rangaswami (CM) Kailashnathan (LG)
Lakshadweep	Praful Patel (LG)
Ladakh	BD Mishra (LG)

Head of States/Government of Various Country

Country	Head
Afghanistan	Hasan Akhund (PM)
Argentina	Javier Milei (President)
Australia	Anthony Albanese (PM)
Bangladesh	Muhammad Yunus (Chief Advisor)
Fiji	Sitiveni Rabuka (PM)
Indonesia	Prabowo Subianto (President)
Iran	Masoud Pezeshkian (President)
Israel	Benjamin Netanyahu (PM)
Italy	Giorgia Meloni (PM)

Country	Head
Japan	Shigeru Ishibe (PM)
Lebanon	Najib Mumati (PM)
Malaysia	Anwar Ibrahim (PM)
Maldives	Mohamed Muizzu (President)
New Zealand	Christopher Luxon (PM)
Nigeria	Bola Tinubu (President)
Russia	Vladimir Putin (President)
Singapore	Tharman Shanmugaratnam (President)
Sri Lanka	Anura Kumara Disanayake (President)
Thailand	P. Shinawatra (PM)
Ukraine	Volodymyr Zelenskyy
Britain	Keir Starmer
USA	Donald Trump
Venezuela	Nicolas Maduro

Head of Important International Organisations

Institution/Organisation	Chief
United Nations	Antonio Guterres (Security-General)
International Court of Justice (ICJ)	Nawaf Salam (President)
Food and Agriculture (FAO)	Qu Dongyu (Director-General)
International Labour Organisation (ILO)	Hugo Gilbert (Director-General)
World Health Organisation (WHO)	Tedros Adhanom Ghebreyesus (Director-General)
World Bank (WB)	Ajay Banga (Chairman)
International Monetary Fund (IMF)	Kristalina Georgieva (Director)
World Trade Organisation (WTO)	Ngozi Okonjo-Iweala (Director General)
International Solar Alliance (ISA)	Ashish Khanna (President)
International Cricket Council (ICC)	Jai Shah (Chairman)
International Federation of Association Football (FIFA)	Gianni Infantino (President)
New Development Bank (NDB)	Dilma Rousseff (President)



HISTORY OF INDIA

Ancient History

Historical Sources

There are mainly three ways to know about ancient Indian History.

Archaeological Sources

- Key sources: Inscriptions, coins, statues, paintings and monuments
- Oldest **Treaty Inscription** (1400 BCE): Found at Bogazkoi, Asia Minor, mentions Vedic gods (Indra, Mitra, Varuna, Nasatya).
- First Mention of 'Bharatvarsha': Hathigumpha inscription.
- Garuda Pillar Inscription (Besnagar): Records the spread of **Bhagwat religion**.
- Prominent Inscriptions: Eran, Prayag Pillar, Mandsaur, Junagadh and Aihole inscriptions.

Literary Sources

- **Religious Literature** Include Vedas, Upanishads, Ramayana, Mahabharata, Puranas, Smriti texts, Buddhist and Jain texts.
- **Non-Religious Literature** Include historical and contemporary works like Mudrarakshasa (Vishakhadatta), Rajtarangini (Kalhana), Prithviraj Raso (Chandbardi) and Harshacharita (Banabhatta).

Details of Foreign Travellers

- **Greek-Roman Writers** Ctesias and Herodotus (Father of History), Plini, Megasthenes
- **Arab and Muslim Authors** Al-Biruni, Al-Sulaiman, Al-Masudi, Minhaj-us-Siraj, Ibn Batutta
- **Italian Traveller** Marco Polo
- **Chinese and Tibetan Authors** Fa-Hein, Hiuen Tsang, I-Tsing

Author	Books
Megasthenes	Indica
Hiuen Tsang	Si-Yu-Ki
Fa-Hein	Fo-kwo-ki
Al-Biruni	Kitab-ul-Hind (Tahqiq-e-Hind)

Coins and Currencies

- **Punch-Marked Coins** Earliest coins with symbols (shapes), no inscriptions.
- **Gupta Period** Issued the maximum number of gold coins.
- **Unique Coin Depictions**
 - Samudragupta playing veena.
 - A ship engraved on Yagyashree Satkarni's (Satavahana) coin.



Pre-Historic Culture

- First Director of the Archaeological Survey of India
– **Sir Alexander Cunningham**
- Father of Indian Pre-history
– **Robert Bruce Foote**

Palaeolithic Age (Old Stone Age)

- The term Palaeolithic coined by **John Lubbock**.
- First stone tool made up of Quartzite
- No knowledge of pottery, agriculture and use of metal
- Divided into three sub- parts: Lower, Middle, Upper

Mesolithic Age

- Characterised by Microliths or small pointed and sharp tools
- Earliest evidence found in **Adamgarh** (Madhya Pradesh) and Bagor
- Evidence of hunting, fishing and food gathering

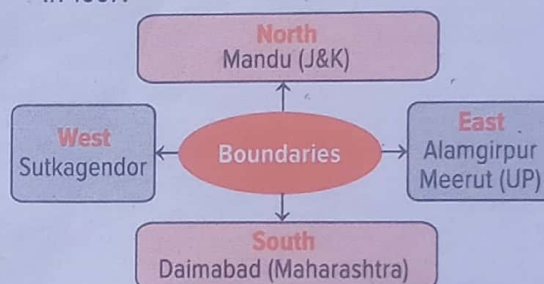
Neolithic Age

- Characterised by the use of polished stone tools
- Evidence of making wheel and discovery of fire
- Cultivate ragi, horse-gram (kulathi) cotton, rice, wheat, barley, etc
- Neolithic site found in Kashmir (Burzahom)
- In Burzahom, dogs buried with masters found
- **Mehargarh** is the oldest Neolithic site.

- Extention in South-East Rajasthan, Western Madhya Pradesh and Maharashtra
- Black and Red ware- First appeared Ochre Coloured Pottery
- Introduction of the tank- irrigation in South India
- Iron metal used predominantly to produce weapons

Indus Valley Civilisation

- Developed between 3300-1300 BCE as per radio carbon dating.
- Also called as Harappan Civilisation because the first excavated site is Harappa, belongs to the Bronze Age.
- Gold and Silver were used to make ornaments and vessels. Weapons and tools were usually made using stone, copper, bronze, etc.
- The largest Indian site of IVC is Rakhigarhi (Haryana), excavated by Amarendra Nath in 1997.



Systematic Town Planning

- Known for advanced city planning and drainage systems.
- **City Layout** Higher section termed as citadel, lower section as 'lower city'.
- Based on grid system, burnt bricks were used to construct houses, highly urbanised and absence of Iron implements.
- **Kalibangan** was the only Harappan site whose lower city was also surrounded by a fort.
- The large bathing place **Great Bath** found in Mohenjo-Daro was a public place, it was 11.88 m long, 7.01 m wide and 2.43 m deep, used for religious bathing.



Town Planning

Economic Life

- Priority given to agricultural work
- Production of wheat, Jowar, ragi, peas
- Greeks called cotton **Sindon**
- Commodity Regulation system
- Domesticated animals like dogs, cats, humped bull and shorthorn cattle.

Social Life

- Matriarchal Society
- Use of Beads and Jewellery
- Weaving and spinning

Religious Life

- No evidence of religious places and temples
- Evidence of fire worship
- Evidence of mother Goddess worship
- Animal worship, tree worship
- Importance of Pashupati Shiva

Script

- The script prevalent is pictographic and this script was written from right to left. This is called **Boustrophedon**.
- 400 inscribed objects had been found

Trade and Commerce of IVC

Material	Region
Gold	Kolar (Karnataka), Afghanistan, Persia (Iran)
Silver	Afghanistan, Persia, South India
Copper	Khetri (Rajasthan), Baluchistan, Arabia
Tin	Afghanistan, Bihar
Lapis Lazuli & Sapphire	Badakhshan (Afghanistan)
Jade	Central Asia
Steatite	Shahr-e Sukhteh (Iran), Kirhar Hills (Pakistan)
Amethyst	Maharashtra
Agate, Chalcedonies & Carnelians	Saurashtra and West India

Important Sites of IVC

Site	Excavated by	Year	River	Evidence Found
Harappa (Pakistan)	Daya Ram Sahni	1921	Ravi	A Horned animal on seals, Stone symbols of lingam and Yoni, Mother Goddess and Dice
Mohenjo-daro (Mound of the Dead) (Pakistan)	RD Banerjee	1922	Indus	Great Granary, Great Bath, Seal with Pashupati and mother goddess, Bronze statue of the dancing girl, bearded man.
Chanhu-daro (Lancashire of India) (Pakistan)	N. Gopal Majumdar	1931	Indus	Craft production, including bead-making, shell-cutting, metal-working, Only City without a citadel.
Kot-Diji (Pakistan)	Faisal Ahmed Khan	1955	Indus	'Well-fired red and buff wares' pottery is found with common motifs like horned deity,
Kalibangan (Rajasthan)	A. Ghosh	1951	Ghaggar	Ploughed field, Bangle factory, Bones of camel, 70 fire altars Cosmopolitan Zone
Lothal (Manchester of Indus valley civilisation) (Gujarat)	S.R. Rao	1953-54	Bhogava	Artificial Dockyard, Terracotta figurine of horse and ship, Double burial, Persian/ Iranian Seal
Ropar (Punjab)	Y.D. Sharma	1953-56	Satluj	First site to be excavated after independence <u>A copper axe</u> was found
Banawali (Haryana)	B.N. Bisht	1973	Rangoi	Toy Plough, Barley Grains, Lapis Lazuli, Only city with Radial streets.
Daimabad (Maharashtra)	B.P. Bopardkar	1958	Pravara	Bronze Images of chariot, ox, elephant and Rhino
Surkotada (Gujarat)	J.P. Joshi	1964	Luni	First actual remains of Bones of Horse, Oval Grave, pot Burials

Vedic Age

- Early Vedic Period (1500-1000 BCE) is marked by the arrival of **Indo-Aryans** in the Indian subcontinent.
- **Land of Seven Rivers** (Sapta Sindhawa): Region where Aryans first settled, comprising the Indus, its five tributaries and the Saraswati.
- **Dasrajan War** Battle of 10 kings against Sudas (Bharata king of Tritsus) on the banks of the River Parushni, where Sudas emerged victorious.

Polity of Early Vedic

- **Kula** (the family) – Basis of both social and political organisation
- **Grama** was 'Group of Kulas' and **Vis** was 'Group of Gramas'.
- Vajrapati /Kalapas – Officer who enjoys authority over large tracts of land.
- **Gramini** – Head of the village
- The **Rajan** (King) was assisted by the Purohita (religious guru), a Senani and Vrata, Jana (Tribe), Grama and Sardha (a tribal group that performs various military functions).

Society

- The society was divided into **four varnas** based on the profession and occupation of individuals: Brahmana, Kshatriya, Vaisya and Shudra.
- Women enjoyed equal freedom and respect.
- There was no instance of child marriage.

Religion

- People used to worship natural forces such as Indra, Agni and Varuna.
- Priests used to perform rituals and sacrifices.
- Two important priests of the period were **Vasishtha** and **Vishvamitra**.



Indra

Rigvedic Gods

God	Significance
Indra	Leader of war and God of rain
Agni	God of Fire
Varuna	Creator of Earth and Sun, God of Sea
Soma	God of Plant and Vegetation
Pushan	God of Animal
Maruts	God of storm
Rudra	Identified as Proto-Shiva

Economy

- Society was mainly agricultural.
- Most important wealth was **cow**.
- No formal structure of taxation. People used to voluntarily collect tax as Bali or Bhaga.

Rigvedic Rivers

Ancient	Modern	Ancient	Modern
Sindhu	Indus	Krumu	Kurram
Vitasta	Jhelum	Asikni	Chenab
Parushini	Ravi	Vipas	Beas
Sutudri	Sutlej	Gomal	Gomati
Sarasvati	Saraswati	Drishadvati	Ghaggar

Later Vedic Period

- In this period (1000- 600 BC) the Aryans expanded their rule from Punjab to western **Uttar Pradesh** covered by the Ganga-Yamuna doab.

Later Vedic Polity

- Kingship became hereditary.
- Assemblies like **Vidhata** were lost.
- Women lost their political freedom.
- Consolidation of territories to increase power was seen during this period.

Society

- The institution of Gotras (clan) appeared in the later Vedic period.
- Brahmins introduced the concept of 16 samskars like Namakrana, Upnayan, and Vivah.
- Ashrama Vyavastha too got consolidated. The four stages of Ashrama were – Brahmacharya, Grihastha, Vanaprastha and Sannyasa.

Economy

- Development of agriculture and animal husbandry.
- Development of iron equipments and **Painted Grey Ware** (PGW).
- Agriculture began with the help of ox.



Painted Grey Ware

Religion

- Supreme god - Prajapati
- Vishnu was conceived as the preserver and protector of people.
- Pushan, responsible for the well-being of cattle, became the god of Shudras.
- Concept of spiritualism emerged.
- Brahmins initiated sacrificial rituals to confer supreme powers to the Rajan.

Literature of Vedic Periods

Veda	Important Features
Rigveda (collection of lyrics)	▪ Oldest text ▪ Contains 10 Mandala, 500 verses and 1028 hymns ▪ 10th mandala explains 4 varnas (Brahmin, Kshatriya, Vaishya and Shudra)
Samaveda (book of chants)	▪ Veda of music ▪ Contains about 16000 ragas and Raginis
Yajurveda (book of sacrificial prayers)	▪ Also known as Veda of Yajna ▪ Elaborates guidelines on how to perform Yajna.
Atharvaveda (book of magical formulae)	▪ Mostly written by Atharva Rishi and Angira Rishi ▪ Chapters related to astronomy, astrology, mathematics, geological and botanical knowledge of India
Aranyakas	▪ Known as forest books
Upanishads	▪ Deal with the philosophy of Vedas. 108 known Upanishads. ▪ Rihadaranyaka is the oldest upanishada.
Vedang	▪ Composed to understand the meaning of vedas ▪ These are six – Shiksha, Kalpa, Vyakaran, nirukta, chhanda and Jyotish

Veda, Upaveda, Brahmanas & Upanishads

Veda	Upaveda	Brahmanas	Upanishads
Rigveda	Ayurveda (Medicine)	Aitareya & Kaushitaki	Aitareya & Kaushitaki
Yajurveda	Dhanurveda (Warfare)	Taittiriya & Shatapatha	Taittiriya, Kath Upanishad
Samaveda	Gandharvaveda (Music)	Panchvish, Shadvish, Tandya & Jaiminiya	Jaiminiya
Atharvaveda	Shilpaveda (Architecture)	Gopatha	Mundaka Upanishad

Darshana

(School of Indian Philosophy)

Darshana	Founder/Proponent
Nyaya Darshana	Gautam
Vaisheshika Darshana	Kanada Rishi
Sankhya Darshana	Kapila
Yoga Darshana	Patanjali
Purva Mimansa	Jaimini
Uttara Mimansa	Badarayana or Vyasa

Other Texts

Puranas

Deals with world creation, the genealogies of Gods and Rishis and the Royal dynasties. There are 18 famous 'Puranas'. 'Matsya Purana' is the oldest among these.

Mahabharata

Written by Rishi Vyas, also known as Jai Samhita, with 100,000 verses.

Smritis

Explains rules and regulations in Vedic life. These are Manusmriti (the first law book), Narada-smriti, Yajnavalkya-smriti and Parashara-smriti, Brihaspati Smriti and Katyayan-smriti.

Ramayana

Ramayana: Written by Rishi Valmiki, with 29,000 verses.

Sutra Literature (Kalpasutra)

Composed to explain the rules and regulations in Vedic literature. It has three parts – Shruta Sutra, Grihya Sutra and Dharma Sutra. Smriti texts have developed from Sutra literature only.

Jainism and Buddhism

- In the sixth century BC, Buddhist and Jain religions arose against the Brahmanic rituals.

Jainism

- Founder – 1st Tirthankara Rishabhadeva
- 23rd Tirthankara – Parsvnath
- 24th and last Tirthankara–Mahavira Swami

Lord Mahavira

Birth Kundalgram / Kundalpur (Vaishali), 540 BCE

Father Siddhartha (The head of the Jnatri Clan of Kshatriyas)

Mother Trishala / Videhadatta

Wife Yashoda (Daughter of Kundinya Gotra)

Daughter Anojja / Priyadarshana

Son-in-law Jamali (First Disciple)

Death 527 B.C in Pavapuri, Near Rajgir

Attainment of Knowledge (Kaivalya) Near Jrambhikagram, on the banks of Rijupalika river
New Name after Kaivalya – Kevalin, Arhat, Jin, Nigranth

First female disciple Chandana (Daughter of Dadhivahana, Ruler of Champa)



Buddhism

Gautama Buddha

Birth 563 BCE at Lumbini, Kapilvastu

Clan Sakya clan

Father Suddhodana, chief of the Sakya clan

Mother Mahamaya (Princess of the Koliya clan)

Spouse Yashodhara

Children Rahula

Other name Siddhartha, Shakyamuni, Tathagata

Predecessor Kassapa Buddha

Successor Maitreya

First sermon Sarnath (Dharmachakrapravartan)

Death Mahaparinirvana at Kushinagar in 483 BCE at the age of 80 in the Malla republic.



Four Noble Truths

- Suffering (dukkha) is the essence of the world.
- Every suffering has a cause – Samudya.
- Suffering could be extinguished – Nirodha.
- It can be achieved by following the Atthanga Magga (Eight Fold Path).

Eight-Fold Path

- Right view ▪ Right aim
- Right speech ▪ Right action
- Right livelihood ▪ Right effort
- Right mindfulness
- Right concentration

- Buddhist Literature** – Vinaya Pitaka (Basket of Discipline), Sutta Pitaka, Abhidhamma Pitaka, Dipavamsa, Mahavamsa, Milinda Panha, Nettipakarana

Buddhist Councils

Council	Place	King	Chairman
First (483 BCE)	Rajgriha	Ajatshatru	Mahakasyapa
Second (383 BCE)	Vaishali	Kalasoka	Sabakami
Third (250 BCE)	Patliputra	Ashoka	Moggaliputta Tissa
Fourth (72 CE)	Kundalvana, Kashmir	Kanishka	Vasumitra, assisted by Ashvaghosha

Jain Councils

First council (300 BC)	▪ Patliputra ▪ By Sthulabhadra
Second council (5th century AD)	▪ Vallabhi ▪ By Kashmasramana

Sects of Jainism

- Svetambaras (wearing white cloth)
Propounded by Sthulabhadra
- Digambaras (no clothes)
Propounded by Bhadrabahu

Doctrines of Jainism

- Ahimsa (non-violence)
- Asteya (no- stealing)
- Aparigraha (not acquiring properties)
- Satya (no lie)
- Brahmacharya (chastity)

Triratnas of Jainism

- Right knowledge ▪ Right faith
- Right conduct

- Religious texts** – Agamas

Rise of Mahajanapadas

- Emergence of new agrarian economy, development of large settlements (cities), army led to creation of large area under one command known as **Janapadas**.
- Over the period of time, some Janapadas emerged as **Mahajanapadas** after gaining great territorial control and increasing their power.

4/6

Mahajanapada and Their Capital

Mahajanapada	Capital	Mahajanapada	Capital
Anga	Champa	Asmaka	Potana
Avanti	Ujjain	Chedi	Suktimati
Gandhara	Taxila	Kamboja	Rajagriha
Kashi	Varanasi	Kosala	Shravasti
Kuru	Hastinapur	Magadha	Rajagriha
Malla	Kusinagara & Pava	Matsya	Viratnagar
Panchala	Ahichhatra	Surasena	Mathura
Vajji (Vrijji)	Vaishali	Vatsa	Kaushambi

Magadha Empire

Magadha emerged as a powerful state with the establishment of the Haryanka Dynasty.

Haryanka Dynasty (544-413 BCE)

- Founder - **Bimbisara**
- Capital City - **Rajagriha**
- Important Kings - Bimbisara, Ajatashatru and Udayin
- Last ruler - Nagadashaka
- Major Events**
 - Bimbisara expanded the Magadha territories, became patron of Buddhism.
 - His son, Ajatashatru, fortified Rajagriha and merged Kashi and Licchavi into Magadha empire
 - Udayin, shifted the capital from Rajagriha to Pataliputra.

Shishunaga Dynasty (413-345 BCE)

- Founder - **Shishunaga**
- Capital City - Rajagriha
- Major Events**
 - Magadhan capital shifted from Rajagriha to Vaishali.
 - Consolidation Magadha as a kingdom, Organisation of administrative system.

- Pataliputra became the new capital
- Last ruler - Mahanandin

Nanda Dynasty (345-322 BCE)

- Founder - Mahapadma Nanda
- Capital City - Pataliputra
- Important Kings: Mahapadma Nanda, Dhana Nanda
- Major Event - Buddhist, Jain and Puranic traditions list nine Nanda kings, with Dhana Nanda being the most prominent.
- Dhana's wealth and military strength intimidated Alexander's army, forcing his withdrawal.

Cyrus

Alexander the Great

- Invaded India in 326 BC during the reign of **Dhanananda**
- Father: Philip (Ruler of Macedonia)
- Major Battle: Battle of Gaugamela (defeated King Darius III of Persia); the Battle of the Hydaspes (defeated King Porus of India).
- Died in Babylon in 323 BC.



Mauryan Dynasty

- In 322 BC, Chandragupta Maurya, with the help of his political guru Chanakya, killed the Nanda ruler Dhanananda and laid the foundation of the rule of Maurya Dynasty.

Chandragupta Maurya (321 BC-298 BC)

- Defeated **Seleucus Nikator**, the general of Alexander
- **Megasthenes** was the Greek ambassador in his court
- Maintained 6 wings of armed forces
- Greek scholars mentioned him as **Sandrocottus**
- Death - 295 BC (Shravanabelagola)

Bindusara (298 BC- 273 BC)

- Antiochus-I (Ruler of Syria) sent **Diamachos** and **Ptolemy** (Ruler of Egypt) sent Dionysus as ambassador to his court.
- Mentioned as **Amitraghat** by Greek scholars.

Ashoka (273 BC- 232 BC)

- Was appointed as governor of **Taxila** and **Ujjain** by Bindusara
- Used to connect directly with his subjects through pillars and rock edicts
- Mention himself as **Devanampriya**.
- Fought the **Kalinga War** (261 BC), after which he converted to Buddhism under **Upagupta**.
- Sent his son Mahendra and daughter Sanghamitra to Ceylon (Sri Lanka) to spread Buddhism.

James Prinsep first succeeded in reading Ashoka's inscriptions in 1837 AD.

- Last Maurya ruler - Brihadratha

Shunga Dynasty (185-73 BC)

- Founder - **Pushyamitra Shunga**
- Capital - Patliputra
- Patanjali wrote his 'Mahabhasya' at this time.
- Last ruler - Devabhuti

Kanva Dynasty (73-28 BC)

- Founder - **Vasudev Kanva**
- Capital - Patliputra and Vidisha
- Important Rulers-Vasudeva, Bhumimitra, Susarman

Satavahana Dynasty (30BC-250AD)

- Founder - **Simuka**
- Capital - **Pratishthana** (modern Paithan) and Amaravati were prominent centers.
- **Important Ruler** Satakarni I, Gautamiputra Satakarni

Foreign Invasion

Indo-Greeks

- Famous king - Menander (Milinda)
- Capital - Sakala (Sialkot)
- Converted to Buddhism by Nagasena, recoded in Milindapanho (a Pali text).
- First to issue gold coins and Hellenistic art in India.

Shakas

- Rudradaman I' (AD 130-150) Repaired Sudarshana lake (Kathiawar).
- Issued the first inscription in Sanskrit (Junagarh inscription).
- Defeated the Satavahanas twice.
- **Vikramaditya** defeated the Shakas.

Parthians

- Founder - Mithridates I
- Greatest Ruler - Gondophernes (AD 19-45)
- **St. Thomas** visited India during his reign to spread Christianity

Kushanas

- Founder - **Kujala Kadphises**
- Greatest ruler - Kanishka
- Started the **Saka Era** (AD 78).
- First to widely issue gold coins with high metallic purity.
- Kanishka's court included scholars like Parsva, Vasumitra, • Asvaghosha, Nagarjuna, Charak (Author of **Charak Samhita**) and Greek engineer Agesilaus.

Sangam Period

- 'Sangam' refers to assemblies of Tamil scholars and poets held under royal patronage.
- 'Kural' by Tiruvalluvar: Known as the 'fifth Veda' or 'Bible of Tamil land'.
- Ruled by three dynasties: Cheras, Cholas and Pandyas.

Three Sangams

Sangam	Place	Headed by
First	Madurai	Rishi Agastya
Second	Kapadapuram	Tolkappiyar
Third	Madurai	Nakkirar

Cheras (1st-2nd century BC)

- Founder – Uthiyar Cheralathan
- Capital – Vanchi
- Symbol – Bow
- Referred to as Kedalaputo (Kerala Putra) in Ashoka's Pali edicts.
- Important rulers – Uthiyar Cheralathan and Kadal Pirakottiya.
- Maintained trade ties with Romans.

Cholas (3rd-13th century BC)

- Capital – Uraiyur, later shifted to Puhar
- Symbol – Tiger
- Important King – Karikala

Pandyas (56-1300 AD)

- Founder – Netunjchliyan I
- Capital – Madurai
- Symbol – Fish (Corp)
- Mentioned in Megasthenes' 'Indica'
- Traded with Romans, sent ambassadors to Emperor Augustus.
- Notable ruler – Kadungon, known for victories.

Gupta Empire

- Founder – **Srigupta** (240-280 AD)
- Actual Founder – Chandragupta I (319-334 AD)

Chandragupta I

- He married Licchavi princess Kumaradevi.
- First circulation of **silver coins**.

Samudragupta (335-375 AD)

- Succeeded Chandragupta I as ruler.
- His victories are detailed in Harishena's Prayag Prashasti.
- Performed the Ashwamedha Yagya.
- Depicted playing the Veena on coins.
- **V.A. Smith** called him **Napoleon of India**.

Chandragupta II (375-415 AD)

- Chandragupta II reign known as the Golden Age of the Gupta Dynasty.
- Titles – Vikramank, Vikramaditya, Parambhagwat.

Patronised **Navratnas** (Nine Gems) :
Kalidasa, Dhavantari, Kshapanaka,
Amarsingh, Shanku, Vetlabhatta,
Ghatakarpara, Varahamihira, Vararuchi.

- Chinese traveler **Fa-Hien** visited India during his reign.
- Assumed the title Shakari after defeating the Shakas, commemorated with the iron pillar at Mehrauli (Delhi).

Kumaragupta I (415-455 AD)

- Left the maximum records among Gupta rulers.
- Founder of Nalanda University (Bihar).
- In his last days, he was attacked by Pushyamitra.

Skandagupta (455-467 AD)

- Credited with protecting India from Hun attacks.
- Sudarshan Lake was renovated by Chakrapalita, son of Parnadatta (Governor of Saurashtra) during his reign.
- Last Gupta ruler - Vishnugupta III

Political Situation

- Kingship - Hereditary
- Highest official - Kumaramaty
- Intelligence personnel - messenger
- Police personnel - Bhat.

Social Situation

- Decline in the social status of Vaishyas and improvement in the status of Shudras.

Bhanugupta (510 AD), in which it is mentioned that the wife of a commander named **Goparaj** became a Sati.

- Dowry system, purdah system, child marriage system and slavery system were prevalent in the society.
- Fa-Hien mentioned untouchability.

Economic Situation

- Major crops - Rice and barley
- '**Khilya**' was the land which was not ploughed.
- Main industry - Manufacture of clothes
- Silver coins** were used in local transactions. The gold currency was Dinar.
- The division of the Roman Empire would probably lead to a decline in foreign trade.
- According to **Fa-Hien**, common people used cowries for buying and selling.

Art and Architecture

- Trimurti art and architecture - Worship of Brahma, Vishnu, and Mahesh.
- Major scholars - Aryabhatta, Varahamihira, Dhanvantari, and Brahmagupta.
- Dashavatara Temple** (Deogarh) - First example of shikhara in Indian temple architecture.

Major Temples of Gupta Period

Temple	Place
Vishnu Temple	Tigwan, Jabalpur, Madhya Pradesh
Shiva Temple	Bhumara, Nagod, Madhya Pradesh
Parvati Temple	Nachna Kuthar, Madhya Pradesh
Laxman Temple	Sirpur

Post-Gupta Period

Harshavardhana (Vardhana Empire)

- Ascended throne at 16.
- Title - **Shiladitya**
- Capital - **Kannauj** (earlier Thaneshwar)
- Composed plays - Nagananda, Ratnavali, Priyadarshika
- Royal poet **Banabhatta** wrote Harshacharita
- Hiuen Tsang** visited India during his reign
- Defeated by **Pulakeshin II** in 630 AD

Pala Dynasty

- Founder - **Gopal** (750 AD)
- Dharmapala** (established Vikramshila University, follower of Buddhism)
- Devpal** (most powerful ruler, donated five villages to build a Buddhist monastery in Nalanda)
- Govind Pala (last ruler, 1162-1174 AD)

Major Dynasties of South India

Pallava Dynasty

- Founder - **Simhavishnu** (575-600 A.D.)
- Capital - Kanchi (Kanchipuram)
- Narasimhavarman I (630-688 AD) - Built chariot temple of Mahabalipuram
- Chinese traveller **Hiuen Tsang** visited Kanchi during the reign of Narasimhavarman-I.
- Narasimhavarman II (700-728 AD) - Built the Kailash Temple of Kanchi
- Last Ruler **Aparajita Varman** (879-897 AD)

Rashtrakuta Dynasty

- Founder - **Dantidurga** (752 A.D.)
- Capital - Mankir or Manyakheta
- Krishna I - Constructed Kailash Temple of Ellora
- Last great ruler - **Krishna III**

Chalukya Dynasty (Vatapi)

- Founder – **Pulakeshin I**
- Capital – **Vatapi** (Badami)
- Greatest Ruler – **Pulakeshin II**
- Titles – Dakshinapatheshwar and Parameshwara
- Battle with Pallava Dynasty - Pulakeshin II defeated by Pallava ruler **Narasimhavarmar** in 642 AD, who assumed the title of Vatapikonda.

- Aihole inscription – Written by **Ravikirti**
- Ravikirti (634 AD) – Built Meguti Jain Temple (Bagalkot, Karnataka)

Chalukya Dynasty (Kalyani)

- Founder – **Tailap II**
- Capital – Manikhet, later capital shifted to Kalyani (Karnataka) by Someshwara I
- Family Symbol – **Varaha**
- Notable Ruler – **Vikramaditya VI**
- Court Scholars
Bilhana – Wrote Vikramankadevacharita
Vigneshwar – Wrote Mitakshara

Chola Empire (9th-12th century)

- Founder – **Vijayalaya** (Title – Narakesari)
- Capital – Tanjore (Thanjavur)
- Raja Raja I Assumed title of Gangaikondachola
- Rajendra III – Last ruler of the Chola dynasty
- The Chola period Nataraja statue is considered to be the cultural essence of Chola art.
- Uttaramerur inscription (Parantaka-I) provides information about local self-government.

Other Dynasties**Sen Dynasty**

- Founder – **Samantasena** (Bengal)
- Capital – **Nadia** (Lucknoti)
- First Dynasty to engrave inscriptions in Hindi

- Ballal Sen – Wrote 'Daan Sagar'
- **Lakshman Sen** – Last Hindu ruler of Bengal

Dynasties of Kashmir**Karkota Dynasty**

- Founder – **Durlabhavardhana** (7th century)
- Lalitaditya Muktapida – Built Martanda Temple

Utpala Dynasty

Queen Didda (ruled in 980 AD) - known as the 'Catherine of Kashmir,'

Lohar Dynasty

Jai Singh (1128-1155 AD) – During his reign Kalhana completed 'Rajtarangini'

Rajput Dynasty

- **Agnikund Theory** – Gurjar Pratihara, Chalukya, Chauhan, and Parmar dynasties originated from Vasishta Muni's Agnikund on Mount Abu.
- Based on – **Prithviraj Raso** by Chandrabardai.

Gurjara Pratihara Dynasty

- **Founder** – Harishchandra (actual founder – Naga Bhatta I)
- **Capital** – Kannauj
- **Most Powerful Ruler** – Mihir Bhoj
- During his reign, Arab traveller Suleiman visited India.
- Mahendrapala and Mahipala patronised Rajashekhara who composed Karpuramanjari, Kavyamimamsa, Avanti Sundara.
- **Last ruler** – Yashpal (1036 A.D.)

Chahamana/Chauhan Dynasty

- Founder – **Vasudev Chauhan** (Shakambhari branch of Chauhan dynasty)
- Last great ruler – Prithviraj III (Raipithaura)
- **Chandra Bardai** – court poet of Prithviraj III.

Battle of Tarain

War	Between	Result
First Battle of Tarain (1191 AD)	Prithviraj Chauhan vs. Muhammad Ghori	Prithviraj Chauhan victorious
Second Battle of Tarain (1192 AD)	Prithviraj Chauhan vs. Muhammad Ghori	Muhammad Ghori victorious

The city of Delhi was founded by **Anangpal**, the ruler of the Tomar dynasty.

Parmar Dynasty

- Founder - Upendra Raj
- Capital - Dhara Nagari
- Most powerful ruler - **Bhoj**
- Bhoj constructed the Tribhuvan Narayan temple.
- Last ruler - Mahalak Dev

Chandela Dynasty

- Founder - **Nannuk** (831 A.D.)
- Capital - Khajuraho
- Kandariya Mahadev Temple of Khajuraho was constructed during the reign of **Dhangdev**.

Solanki Dynasty

- Founder - **Mulraj I**
- Capital - Anhilwad

- Most powerful ruler - Jai Singh Siddharaj
- Mahmud Ghaznavi attacked the Somnath temple during the reign of Bhima I.
- Bimal, a feudatory of Bhima I, built the Jain temple of Dilwara on Mount Abu.
- Last ruler - Bhima II

Important Foreign Traveler

Foreign Traveler	Duration	Ruler
Megasthenes (Greece)	305 BC	Chandragupta Maurya
Dimechus (Syria)	298 BC	Bindusara
Fa-Hian (China)	399 AD	Chandragupta II
Xuanzang (China)	630 AD	Harshvardhan
Itsing (China)	675 AD	Vikramaditya I
Marco Polo (Italy)	1288 AD	Kulasekhara Pandyan (Pandya)

Important Samvat and their Founders

Time	Samvat	Founder
57 BC	Vikram Samvat	Vikramaditya (King of Malwa)
78 AD	Shaka Samvat	Kanishka
248 AD	Kalachuri Samvat	Ishwar Sen
319 AD	Vallabhi Samvat	Vallabh
319-20 AD	Gupta Samvat	Chandragupta I
606 AD	Harsha Samvat	Harshvardhan
1076 AD	Chalukya Samvat	Vikramaditya VI

Medieval India

- The first Arab attack on India took place in 712 AD under the leadership of **Muhammad bin Qasim**.
- At that time Sindh was ruled by **Dahir**.
- **Mahmud Ghaznavi**
 - Ascension to throne (Ghazni) - 998 AD
 - Invasions of India - 17 times (1001-1026 AD)
 - First invasion - Against Jaipal, ruler of Hindu Shahi dynasty (1001 AD)
 - Somnath Temple invaded in 1025 AD.
- Last invasion - Against Jats of Sindh and Multan
- Titles - 'Yamir-ud-Daula' and 'Amin-ul-Millah' by Caliph Al-Adir Billah
- In 1026 AD, he defeated the Jats.
- He patronised three persons, contemporary to him - **Firdausi** (court poet), **Alberuni** (scholar) and **Utbi** (court historian).
- Death - 1030 AD

Mohammad Ghori

- **First Invasion of India** 1175AD, targeting Multan
- Defeated by Chalukya ruler Bhima II in 1178 AD
Founder of Turkish Rule in India
- In Battle of **Chandawar** he defeated Jaichand, ruler of Kannauj, in 1194 AD
- **Death** Murdered by Khokhars in 1206 AD at Damyak.
- **Coins** Featured **Kalma** on one side and image of **Lakshmi** on the other



Delhi Sultanate

Slave Dynasty (1206-1290 AD)

Qutubuddin Aibak

- In 1206 AD, Muhammad Ghori's slave Qutubuddin Aibak became the Sultan.
- Capital - **Lahore**
- Title - Qura Khan and Lakh Baksh
- Laid the foundation of Qutab Minar in the memory of **Khwaja Qutubuddin Bakhtiyar Kaki**.
- Built - Quwwat-ul-Islam Mosque in Delhi and Adhai Din Ka Jhonpra in Ajmer.
- Died - 1210 A.D. (falling from horse while playing Chaugan), buried in Lahore.
- Succeeded by - Aramshah

Iltutmish

- Ascended the throne of Delhi after murdering Aramshah in 1211 AD.
- Before becoming the Sultan, he was the governor of Badaun.
- He was the first ruler who received legal approval from the Caliph of Baghdad in 1229 AD.

Important Work

- Formation of **Turkan-i-Chahalgani**
- 1231-32 AD Construction of Qutub Minar completed
- Circulation of silver **tanka** and **copper jital** coins
- Introduction of **Iqta system**

Razia Sultan

- Ascended the throne in 1236 AD.
- First and last female ruler of the Delhi Sultanate.
- Married **Altunia**, the governor of Bathinda and he was murdered in Kaithal in 1240 AD.
- Preceded by incompetent rulers: Bahram Shah, Alauddin Masood Shah, and Nasiruddin Mahmud.

Balban

- Ascended the throne in 1266 AD.
- Titles - Niabat-e-Khudai and Zille-Ilahi.
- Tughril Khan revolted in Bengal, which he suppressed brutally.

Important Work

- Beginning of the Persian New Year **Nowruz**
- Adopted the policy of iron and blood
- Introduced **Sijda** and **Paibos**
- Established Military Department (Diwan-i-Arz)

- After the death of Balban in 1287 AD, Moizuddin Kaiqubad became the ruler.
- 'Shamsuddin Kaimur's', the last ruler of the Slave Dynasty

Khilji Dynasty (1290-1320 AD)

- Founder - Jalaluddin Firoz Khilji
- Title - Shaista Khan
- Capital - **Kilokhari**
- In 1296 AD, his nephew and son-in-law Alauddin Khilji murdered him in Kada Manikpur (Prayag).

Alauddin Firoz Khilji

- Became the Sultan of Delhi in 1296 AD.
- Title - Sikandar-e-Sani (Alexander II)
- Death - 1316 AD.
- He sent **Malik Kafur** to conquer South India.

Important Work

- Cash Salary to Army and Permanent Army
- Introduced **Daag** and **Huliya** (Practice of branding horses and keeping uniforms for soldiers)
- Strict enforcement of market control system
- Fixation of rent on the basis of Zabt method (measurement of land)

- Establishment of Diwan-e-Mustakhraj Department
- Built - Jamatkhana Mosque, Alai Darwaza, Siri Fort, Hazar Situn Palace

Amir Khusro was the court poet of Alauddin Khilji. He invented **sitar** and **tabla**. He composed **Khazain ul-Futuh** (Treasures of Victory) which describes the deeds of Alauddin.



Amir Khusro

Mubarak Shah Khilji

- The first Sultan who declared himself **Caliph**.
- Title - Khilafat ul-Lah al-Imam
- He was the last ruler of the Khilji dynasty.

Tughlaq Dynasty (1320–1414 AD)

- Founder - **Ghiyasuddin Tughlaq**
- In 1320 AD, after defeating Khusro Khan, He ascended the throne of Delhi.
- First ruler of Delhi Sultanate to construct a canal for irrigation.
- Established a new city named Tughlaqabad in Delhi.
- Had differences with Sufi saint **Nizamuddin Auliya**.
- Died - 1325 AD, buried in the wooden palace built by Jauna Khan

Muhammad-Bin-Tughlaq

- After Ghiyasuddin, Jauna Khan ascended the throne of Delhi in the name of **Muhammad-bin- Tughlaq**.
- In 1327 AD, he shifted his capital from Delhi to Devagiri and named it Daulatabad.
- During his period, **Ibn Batuta** (Moroccan traveller) came to India in 1333 AD.
- Died - 1351 AD (at Godal near Thatta)

Important Work

- Introduced token currency
- Establishment of **Diwan-i-Kohi** (Department of Agriculture)

Firozshah Tughlaq

- Became the Sultan of Delhi in 1351 AD.
- Abolished 24 burdensome taxes and ordered the collection of only four taxes - Kharaj, Khums, Jizya (even on Brahmins) and Zakat.

Important Work

- Establishment of Hissar, Firozabad, Fatehabad, Jaunpur, Firozpur
- Construction of Kotla Firoz Shah Fort in Delhi
- Reconstruction of the fifth floor of Qutab Minar destroyed by lightning
- Wrote his autobiography **Futuh-e-Firoz Shahi** in the Persian language.
- His court poet Barani wrote a book named **Tarikh-e-Firoz Shahi**.

- The last ruler of the Tughlaq dynasty was Nasiruddin Mahmud.
- Taimur Lang attacked Delhi in 1398 AD during his reign



Taimur Lang

Sayyid Dynasty (1414-1451 AD)

- Founder - **Khizr Khan**
- Last Ruler - Alauddin Alam Shah
- Information related to the Sayyid dynasty is found in **Tarikh-i-Mubarakshahi** (Author-Yahya bin Ahmad Sirhindi).

Lodi Dynasty (1451-1526 AD)

- Founder - **Bahlol Lodi** (first Afghan ruler of Delhi Sultanate)
- He started ruling Delhi with the title of Bahlol Shah Ghazi in 1451 AD.
- His biggest success was the re-incorporation of Jaunpur into Delhi.

Sikandar Lodi

- Established Agra in 1504 and made Agra his capital in 1506 AD.
- Wrote poems in Persian under the pen name **Gulrukhi**.
- Introduced Gaz-i-Sikandari for measuring land.
- Death - 1517 AD.

Ibrahim Lodi

- He was the last ruler of Delhi Sultanate.
- Title - **Ibrahim Shah**
Babar captured the city of **Panipat** in 1526 A.D.
Established Mughal rule by defeating Ibrahim Lodi in the **first war**.
- He was the only Sultan of Delhi Sultanate who attained martyrdom on the battlefield.



Religious Movements

Sufism

- Mystics who are called Sufis, rose in Islam at a very early stage
- They advocated a life of purity and renunciation

Sufi Order, Silsilahs and Saints

Sufi Order/ Founder	Popular Saints
Chisti/Khwaja (Abdul Chisti)	Khwaja Muinuddin Chisti (India) Bakhtiyar Kaki, Nizamuddin Auliya
Suhrawardy (Shaikh Shahbuddin Zakaria)	Shaikh Bahauddin Zakariya
Firdausi (Shaikh Badruddin of Smarak)	Shaikh Shamsuddin Yahya (Bihar)
Qadri (Shaikh Abdul Qadir)	Shah Niamatullah Syid Muhammad Jilani
Naqshbandi (Khwaja Pir Muhammad)	Khwaja Baqi Billah Shaikh Ahmad Sirhindi

Bhakti Movement

- It took place in Tamil Nadu between the 7th and 12th centuries.
- Major saints - **Saguna** (Tulsidas, Meera, Chaitanya, Surdas, Vallabhacharya), **Nirguna** (Kabir, Nanak)
- Major Deity - Ram/Krishna and Shiva
- First Propagator - **Ramanujacharya**
- Theory of Salvation through Bhakti - Madhvacharya

- Six Indian Philosophies - Nayaya Gautam Vaisheshik- Kanad Saankhya- Kapilmuni Purva Mimamsa- Jamini Uttar Mimamsa- Vyas Yoga- Patanjali
- **Alvars** - Devotees of Lord Vishnu
- **Nayanars** - Devotees of Lord Shiva

Provincial Kingdoms

Vijayanagara Empire

(1336-1652 AD)

- Founder - Harihar and Bukka
- Year of establishment- 1336 A.D.
- Mentor - Madhav Vidyaranya
- Capital - Hampi (Hastinavathi)
- Greatest ruler - **Krishnadeva Raya**

Dynasties of Vijayanagara Empire

Dynasty	Founder
Sangam Dynasty	Harihar and Bukka
Saluva Dynasty	Narsingh Saluva
Tuluva Dynasty	Veer Narasimha
Aravidu Dynasty	Tirumala

Key Events and Figures

- **1420 AD** Italian traveller Nicolo Conti visited Vijayanagara during Devaraya I's reign.
- **1442 AD** Traveller Abdurrazzaq visited Vijayanagara during Devaraya II's reign.
- **1515-16 AD** Portuguese travellers Domingo Paes and Barbosa visited India during Krishnadeva Raya's reign.
- **Krishnadeva Raya** - Composed Amuktamalyada in Telugu and Jambavati Kalyanam and Usha Parinaya in Sanskrit.

Battle of Talikota (1565 AD)

- Vijayanagara ruler **Ramaraya** defeated near Bannihatti.
- Marked the end of Hindu supremacy in the south.
- The Federation of Ahmednagar, Bijapur, Golkonda and Bidar formed against Vijayanagara.

Bahmani Empire (1347-1518 AD)

- Founder - **Hasan Gangu**
- Capital - Gulbarga
- **Mahmud Gawan** was an Iranian scholar who was a minister in the Bahmani Empire for about 25 years.
- The Bahmani ruler Humayun Shah was called the Nero of the Deccan.
- Russian traveller **Nikitin** visited the Bahmani Empire in 1417 AD during the reign of Muhammad III.
- After the murder of Mahmud Gawan, Bahmani was divided into five small states, Bidar, Ahmednagar, Bijapur, Golconda and Berar.

States Formed by Disintegration

State/Dynasty	Founder/Year
Ahmednagar/ Nizamshahi	Malik Ahmed/ 1490 AD
Bijapur/Adilshahi	Yusuf Adil/ 1489 AD
Golconda/ Qutubshahi	Quli Qutub Shah/ 1512 AD
Bidar/Baridshahi	Ameer Ali Barid/ 1526 AD
Berar/ Imadshahi	Fatehullah Imadshah/ 1490 AD

Mewar

- In 1448 AD, **Rana Kumbha** built the Vijay Stambh in Chittor.
- Rana Sanga defeated Ibrahim Lodi in the Battle of Khatauli in 1517-18 AD.

Jaunpur

- Firoz Tughlaq founded Jaunpur in the memory of Muhammad Tughlaq
- Title of Jaunpur - **Shiraz of India**

Mughal Empire

Babur

- Mughal Empire Founder - **Babur**
- Birth - 1483 AD, Fergana (Uzbekistan)
- Title - Kalandar (for generosity)
- Reign - 1526-1530 AD
- Babur was invited to attack India by **Daulat Khan Lodi** and **Rana Sanga**, and he went on to establish the Mughal Empire in India

Babur's Conquests

- First Battle of Panipat (1526 AD) - Used Tullgama war strategy and artillery for the first time, defeating Ibrahim Lodi.
- Battle of Khanwa (1527 AD) - Assumed title of Ghazi, and gave the slogan of Jihad
- Battle of Chanderi (1528 AD) - Defeated Medini Rai
- Battle of Ghaghra (1529 AD) - Defeated joint Afghan army of Bihar and Bengal

Literary Contributions

- Baburnama - Wrote autobiography in Turkish language
- Mubaiyan Poetry - Originated this style of poetry

Humayun

- 1530-40 AD - First reign
- 1555-56 AD - Second reign

Key Events

- 1533 AD - Established **Dinpanah** city in Delhi
- 1539 AD - Defeated by **Sher Khan** in the Battle of Chausa (June 25)
- 1540 AD - Defeated by Sher Khan in the Battle of Bilgram or Kannauj (May 17)
- 1555 AD - Defeated Sikandar Suri and recaptured Delhi
- 1556 AD - Died on January 27 after falling from the stairs of Dinpanah library

Sher Shah Suri (1540-1545 AD)

- Real name - Farid
- Title - Sher Shah (by Bahar Khan Lohani)
- Joined Babur's army in the Battle of Chausa (1539 AD) and Kannauj (1540 AD)
- Establishment of the Second Afghan Empire (1540 AD)



Major Contribution

- Reforms in the land revenue system
- Introduced the silver rupee (178 grains) and the copper dam (380 grains)
- Collection of rent through the Ryotwari system
- Construction of the grand trunk road
- Beginning of Kabuliya and Patta system

Akbar (1556-1605 AD)

- Born - 15th October, 1542 (Amarkot)
- Coronation - 14th February, 1556 (Kalanaur, Punjab)
- From 1556 to 1560 AD - Ruled under the guidance of Bairam Khan.



Important Work

- Abolished slavery (1562), pilgrimage tax (1563), Jizya tax (1564)
- Introduced **Mansabdari System** (1570)
- Established Ibadat Khana (1575)
- Introduced Din-e-Ilahi religion (1582)
- Beginning of the Ilahi era (1583)
- Capital shifted to Lahore (1585)

Notable Figures in Akbar's Court

- The nine Jewels of Akbar's court were Mulla Do Piyaza, Raja Mansingh, Abdurrahim Khan-i-khanam, Todarmal, Hakeem Human, Faizi, Abul Fazal, Birbal and Tansen.
 - **Tansen**, a renowned musician
 - **Birbal** was the first and last Hindu to accept the Din-e-Ilahi.
 - **Raja Todarmal**, who implemented the **Dahsala system** in 1580 AD
- Eminent painters of his court Abdussamad, Dasavant and Basawan
- Harivijay Suri, a Jain scholar, whom he honoured with the title Jagatguru
- The Chishti sect provided shelter and support, with **Salim Chishti** being a notable contemporary.

Major Battles Won by Akbar

War	Year	with
Second Battle of Panipat	1556	Hemu
Battle of Haldighati	1576	Maharana Pratap

- Akbar constructed the **Buland Darwaza** at Fatehpur Sikri in 1573 AD to commemorate his conquest of Gujarat.
- Major architecture of Akbar's period: Agra Fort, Fatehpur Sikri Royal Palace,

Ibadat Khana, Panch Mahal, Jodha Bai's Palace, Allahabad Fort, Lahore Fort.

- Akbar was the first Mughal ruler to issue silver coins bearing the images of **Ram and Sita**. He gave a systematic form to the Mughal currency system.

Jahangir (1605-1627 AD)

- Born - August 30, 1569
- Childhood name - **Salim**
- In 1605 AD he ascended the throne assuming the title of Nuruddin Muhammad Jahangir Badshahi Ghazi.
- He is also remembered for the chain of Justice.
- Autobiography - Tuzuk-e-Jahangiri (Persian language)
- Teacher - **Abdurrahim Khankhana**
- Jahangir executed the fifth Sikh guru, **Guru Arjan Dev**, for helping Khusrau.
- **Major painters** Aaq Reza, Abul Hasan, Mansoor, Bishandas, Manohar.
- The time of Jahangir is called the golden age of painting.
- **Major European** travellers during Jahangir's time were Captain Hawkins, Sir Thomas Roe, William Finch and Edward Terry
- Jahangir's tomb in Lahore was built by Noor



Shah Jahan (1627-1658 AD)

- Born - 1592 AD (Lahore)
- Childhood name - Khurram
- Ascended the throne - 1627 AD
- Capital - Delhi
- Khurram married Asaf Khan daughter **Arjumand Bano Begum** (Mumtaz Mahal) in 1612 A.D., to whom he gave the title of Mallika-e-Zamani.
- In her memory Shah Jahan built the Taj Mahal in Agra.
- Shah Jahan built the Peacock Throne. His reign is also called the **Golden Age of Mughal Architecture**.
- Major buildings - Red Fort of Delhi, Diwan-e-Aam, Diwan-e-Khas, Jama Masjid



of Delhi, Moti Masjid of Agra and Taj Mahal.

- In 1658 AD Aurangzeb imprisoned Shah Jahan. He died in 1666 AD

Aurangzeb (1658-1707 AD)

- Born - November 3, 1618 Dohud (Gujarat)
- Coronation - 1658 AD (twice)
- Nickname - **Zinda Peer**
- Banned Jharokha Darshan and celebration of Nauroz
- **Jizya** tax was reimposed in 1679 A.D.
- Constructed Bibi Ka Maqbara in Aurangabad in 1679 AD
- Bijapur was merged into the Mughal Empire in 1686 AD and Golconda in 1687 AD.
- Responsible for the execution of Guru Teg Bahadur, the ninth Sikh Guru, in 1675.
- Died - 1707 AD, Ahmednagar (after his death the decline of the Mughals began)
- During the time of Aurangzeb, the number of provinces in India was 20.



Nadir Shah's Attack

- The Iranian emperor Nadir Shah attacked Delhi 1739 AD during the reign of Muhammad Shah Rangeela.
- Nadir Shah returned to Persia with the **Peacock Throne** and the legendary **Kohinoor diamond**.

- The last Mughal emperor was Bahadur Shah Zafar II.
- He was exiled to Rangoon after the 1857 revolt, where he died.

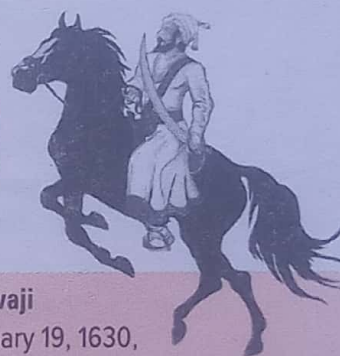
Literature of Mughal Period

- The official language of the Mughals was Persian.
- **Mahabharata** was translated into Persian language under the name Razmnama by Badayuni, Naqib Khan and Abdul Qadir.

Books and Authors of Mughal Era

Book	Author
Humayunnama	Gulbadan Begum
Ain-e-Akbari	Abul Fazal
Rukat-e-Alamgiri	Aurangzeb
Tabaqat-e-Akbar	Nizamuddin Ahmed
Muntakhab-ut-Tawarikh	Badauni
Padmavat	Malik Muhammad Jayasi
Akbarnama	Abul Fazal
Alamgirnama	Abdul Hameed Lahori, Muhammad Waris
Majma-ul-Bahrain	Dara Shikoh
Fatuh-e-Alamgiri	Ishwar Das Nagar
Masir-e-Alamgiri	Saqi Mustaid Khan

Rise of the Marathas



- Founder - **Shivaji**
- Born on February 19, 1630, Shivneri Fort (near Junnar)
- Father's Name - Shahaji Bhosale
- Mother's name - Jijabai
- Mentor - Dadoji Konddev
- Title - Chhatrapati
- Cabinet - Ashtapradhan
- Shivaji was greatly influenced by his mother Jijabai and Guru Samarth Ramdas.
- Shivaji made Raigad his capital in 1656 AD and subjugated Surat in 1664 AD.
- **The Treaty of Purandar** (1665 AD) was signed between Mughal governor Maharaja Jai Singh and Shivaji.
- He looted Surat, the trading centre of the Mughals, twice (1664 AD and 1670 AD).
- In 1674 AD, Shivaji got himself crowned by Gaga bhatta, a scholar from Kashi in **Raigad**.
- Death - 3rd April, 1680 (Raigarh)
- Successor - **Sambhaji**.
- The Third Battle of Panipat (1761 AD) took place between the Marathas and **Ahmed Shah Abdali**, in which the Marathas were defeated.

Sikh Gurus and Related facts

Guru	Born-death	Facts
Guru Nanak	1469-1539	Established Sikhism, started Langar system
Guru Angad	1539-1552	Founded Gurumukhi script
Guru Amar Das	1552-1574	Established 22 Manjis (dioceses)
Guru Ramdas	1574-1581	Establishment of Amritsar city, the position of Guru made hereditary
Guru Arjan Dev	1581-1606	Compiled Adi Granth, built Harmandir Sahib
Guru Hargobind	1606-1645	Built Akal Takht
Guru Har Rai	1645-1661	Supported Dara Shikoh
Guru Harkrishan	1661-1664	Died of smallpox at a young age
Guru Tegh Bahadur	1664-1675	Executed by Aurangzeb
Guru Gobind Singh	1675-1708	Founded Khalsa Panth, last Sikh Guru

Modern India

Arrival of Europeans

- **Vasco-da-Gama**, a Portuguese explorer, reached Calicut, India on May 17, 1498.
- **Francisco de Almeida** became the first Portuguese Viceroy in 1505 and implemented the **Blue Water Policy**.
- **Alphonso de Albuquerque**, the real founder of the Portuguese Empire in India, became Viceroy in 1509 and conquered Goa in 1510
- The Portuguese established their first trading house in Cochin.
- **Cornelius Houtman** was the first Dutch traveller to visit India.

European Companies

Company	Year of Establishment
Portuguese East India Company	1498 AD
English East India Company	31st December, 1600 AD
Dutch East India Company	20th March, 1602
Danish East India Company	17th May, 1616

Company	Year of Establishment
French East India Company	1st September, 1664
Swedish East India Company	14th June, 1731

- 1600 - Queen Elizabeth I granted a charter to the East India Company.
- 1608 - Captain Hawkins visited the Mughal court as James I's ambassador.
- 1611 - British started trading from Masulipatnam later in 1616 established a factory there.
- 1613 - British opened their first factory in Surat.
- 1615 - Sir Thomas Roe was sent as James I's ambassador to Jahangir's court.
- 1668 - French established their first factory in Surat.
- 1674 - Francois Martin founded Pondicherry, was first French Governor-General.
- 1759 - The Dutch were defeated by the British in the Battle of Bedra.

Carnatic Wars

War	Duration and Treaty
First Carnatic War (1746-48 AD)	Treaty of Treaty of Aix-la-Chapelle (1748 AD)
Second Carnatic War (1749-54 AD)	Treaty of Pondicherry (1755 AD)
Third Carnatic War (1756-63 AD)	Treaty of Paris (1763 AD)

Rise of New States

Notable states under this category include Bengal, Mysore, Maratha, Sikh, Awadh, Rajput, Hyderabad, and Bharatpur.

Bengal

- After Aurangzeb's death, Bengal gained independence under **Murshid Quli Khan's** (1717-1727) leadership. He shifted the capital from Dhaka to Murshidabad.
- After Murshid Quli Khan's death **Shujauddin Sarfaraz** (1726) and later Alivardi Khan succeeded him as Nawab.
- **Siraj-ud-Daula** (1756-1757) became the Nawab of Bengal on April 10, 1756.
- His reign was marked by the infamous Black Hole Tragedy (20th June, 1756).

Wars between Nawab of Bengal and British

War and Year	Opponents	Result
Battle of Plassey (1757)	Siraj-ud-Daulah vs. Robert Clive (British)	British victory, death of Siraj-ud-Daulah
Battle of Buxar (1764)	Shuja-ud-Daula, Shah Alam II, Mir Qasim vs. Hector Munro	British victory, establishment of British rule in India

- In 1765 AD, Clive established dual rule in Bengal, which lasted till 1772 AD.

- **First Treaty of Allahabad** (12 August, 1765)
Signed by Shah Alam II, Najmuddaulah and Clive, under this treaty, the company got the Diwani of Bengal, Bihar and Orissa.
- **Second Treaty of Allahabad** (16 August, 1765)
Signed between Nawab Shuja-ud-Daula of Awadh and Clive.

Mysore Kingdom



- Emerged as a powerful state under **Hyder Ali's** leadership.
- Hyder Ali introduced western military training and established a modern armoury at Dindigul (1755 AD) with French help.
- After Hyder Ali's death (1782 AD), his son Tipu Sultan succeeded him.

Tipu Sultan

- Member of the **Jacobin Club** of France.
- Planted the tree of liberty in Srirangapatna.
- Built a strong army based on the French pattern.
- Known as **Sher-e-Mysore**.

Anglo-Mysore Wars

War and Year	Opponents	Treaty/Result
First War (1767-69)	Hyder Ali vs. Lord Verelst	Treaty of Madras (British defeat)
Second War (1780-84)	Hyder Ali (1782), Tipu Sultan vs. Warren Hastings	Treaty of Mangalore (Hyder Ali's death)
Third War (1790-92)	Tipu Sultan vs. Lord Cornwallis	Treaty of Srirangapatna (Tipu's defeat)
Fourth War (1799)	Tipu Sultan vs. Lord Wellesley	Tipu's death

Maratha State and Federation

Founder - **Chhatrapati Shivaji Maharaj**

Successors

- After Shivaji's death, his successors included Shambaji (1680-89 AD), Rajaram (1689-1700 AD) and Shahu (1707-1749).
- In 1713, Shahu appointed **Balaji Vishwanath** as Peshwa.
- Balaji Vishwanath's son, **Baji Rao I**, expanded the Maratha Kingdom significantly between 1720-1740.

- The Third Battle of Panipat (1761) saw the defeat of the Marathas under Peshwa **Balaji Bajirao**.

Decline and Annexation

- **Bajirao II** was the last Peshwa, exiled to Bithoor (Kanpur) by the British.
- The Maratha confederacy was eventually annexed to the British Empire

Anglo-Maratha Wars

War and Year	Governor General	Treaty
First War (1775-1782)	Warren Hastings	Treaty of Salbai
Second War (1803-1805)	Lord Wellesley	Treaty of Deogaon and Surji-Arjun
Third War (1817-1818)	Lord Hastings	Treaty of Gwalior

Sikh

- After Guru Gobind Singh, Banda Bahadur (1708-1716 AD) led the Sikhs.
- Banda Bahadur was the first political leader of the Sikhs. He established the first Sikh state.
- After the death of **Banda Bahadur** in 1716 AD, the Sikhs were divided into many parts.
- **Ranjit Singh** (1792-1839 AD) belonged to Sukerchakia Misl.
- The Treaty of Amritsar (25 April, 1809) was signed by Ranjit Singh and Metcalfe.



Anglo-Sikh Wars

War and Year	Opponents	Treaty
First War (1845-46)	Dilip Singh vs. Lord Hardinge	Treaty of Lahore (March 1846)
Second War (1848-49)	Dilip Singh vs. Lord Dalhousie	Treaty of Lahore (March 1849)

Awadh

- Founder - Saadat Khan Burhan-ul-Mulk (1722 AD)
- After **Suadat Khan**, Safdar Jung and then Shuja-ud-Daula became the Nawab of Awadh.
- Shujaudullah supported Ahmed Shah Abdali in the third battle of Panipat.
- He participated in the **Battle of Buxar**, but was defeated.
- The last Nawab of Awadh was **Wajid Ali Shah**, during whose reign the British declared misrule in 1856 AD and merged it into British empire

Rajput

- Founder - **King Sawai Mirza Jai Singh** of Amer (Jaipur)
- Founded - Jaipur city in 1727 AD.
- Received title of Sawai - By Mughal ruler Farrukhsiyar.
- Organised Ashwamedha Yagna - Performed the ritual twice.
- Established astronomical observatories: In Mathura, Banaras, Delhi, Jaipur and Ujjain.
- Made literary contributions - Prepared Zij Muhammadshahi tables and translated Euclid's 'Elements of Geometry' into Sanskrit.

Hyderabad

- Founder - **Chinkilich Khan** (Nizam-ul-Mulk Asafjah) (1724 AD)
- After the death of Nizamul Mulk in 1748 AD, Hyderabad accepted Wellesley's Subsidiary Treaty.

Bharatpur

- Founder - **Chudaman** (1700 AD)
- After Chudaman, Badan Singh took over the power. Ahmed Shah Abdali gave him the title of Raja.
- After Badan Singh, Surajmal took power in 1756 AD.
- It is also called **Plato of Jats**.

Karnataka

- Founder - **Sadutullah Khan**
- He declared Arcot as his capital.

Rohilkhand

- Founder - Sardar Dawood and Ali Muhammad Khan
- In 1713 AD, Bangash Pathans established an independent state in Farrukhabad to whom Muhammad Khan Bangash provided his leadership.

Governor-Generals of India

<i>Governor-General</i>	<i>Important Works</i>
Warren Hastings (1772-85)	First Governor-General, Regulating Act of 1773, Supreme Court at Calcutta
Lord Cornwallis (1786-93)	Establishment of Appellate courts, Permanent Settlement, Civil Services
Sir John Shore (1793-98)	Charter Act of 1793, Policy of Non-intervention
Lord Wellesely (1798-1805)	Subsidiary Alliance System, Fourth Anglo-Mysore War, Second Anglo-Maratha War
Sir George Barlow (1805-1807)	Diminished British Territory, Mutiny of Vellore
Lord Minto-I (1807-1813)	Treaty of Amritsar, Charter Act of 1813
Lord Hastings (1813-23)	End of Non-intervention, Third Anglo-Maratha War, Ryotwari System
Lord Amherst (1823-28)	Annexation of Assam, First Burmese War
Lord William Bentinck (1828-35)	Abolition of Sati, English Education Act of 1835
Lord Charles Metcalfe (1835-36)	Liberation of the Indian press
Lord Auckland (1836-42)	Improvement of native schools, First Anglo-Afghan War
Lord Ellenborough (1842-44)	Annexation of Sindh
Lord Hardinge-I (1844-48)	First Anglo-Sikh War
Lord Dalhousie (1848-56)	Doctrine of Lapse, Charles Woods Despatch, First Railway line
Lord Canning (1856-62)	Widow Remarriage Act, Establishment of universities

Viceroy of India

<i>Viceroy</i>	<i>Important Works</i>
Lord Canning (1856-62)	First Viceroy, Establishment of universities
Lord John Lawrence (1864-69)	Bhutan War, Establishment of High Courts
Lord Lytton (1876-80)	Vernacular Press Act, Second Afghan War
Lord Ripon (1880-84)	Repeal of Vernacular Press Act, First Factory Act
Lord Dufferin (1884-88)	Third Burmese War, Establishment of Indian National Congress
Lord Lansdowne (1888-94)	Second Factory Act, Indian Councils Act
Lord Curzon (1899-1905)	Appointment of Police Commission, Indian Universities Act
Lord Minto II (1905-10)	Swadeshi Movements, Morley-Minto Reforms
Lord Hardinge II (1910-16)	Annulment of Partition of Bengal, Capital transfer to Delhi
Lord Chelmsford (1916-21)	Lucknow Pact, Government of India Act
Lord Reading (1921-26)	Chauri-Chaura Incident, Withdrawal of Non-Cooperation Movement
Lord Irwin (1926-31)	Simon Commission, Lahore Session of Congress
Lord Willingdon (1931-36)	Communal Award, Poona Pact, Government of India Act
Lord Linlithgow (1936-44)	Resignation of Congress ministries, Lahore Resolution
Lord Wavell (1944-47)	C. Rajagopalachari's CR Formula, Wavell Plan, Cabinet Mission
Lord Mountbatten (1947-48)	June Third Plan, Redcliff Commission, India's Independence

Revolt of 1857

Causes

- Introduction of Enfield rifle with greased cartridges.
- Doctrine of Lapse (policy of annexing Indian princely states)
- The General Services Enlistment Act required Indian sepoys to serve overseas.
- Heavy taxation, exploitation of traditional industries, and widespread poverty.
- British interference in Indian social and religious practices.

Key Events

- Sepoy of 34th Bengal Native Infantry **Mangal Pandey** revolted on March 29, 1857, in Barrackpore Cantonment.
- Meerut Revolt - April 24, 1857, Soldiers refused to use greased cartridges.
- On 11 May, 1857, rebels captured Delhi and declared Bahadur Shah II emperor.



Leaders of the Revolt of 1857

Leader	Location	Date of Rebellion
Bakht Khan	Delhi	May 11-12, 1857
Nana Saheb, Tatya Tope	Kanpur	June 5, 1857
Begum Hazrat Mahal	Lucknow	June 4, 1857
Rani Laxmibai	Jhansi	June, 1857
Liaquat Ali	Allahabad (Prayagraj)	1857
Kunwar Singh	Jagdishpur	August, 1857
Khan Bahadur Khan	Bareilly	June, 1857
Maulvi Ahmadullah	Faizabad	June, 1857
Azimullah	Fatehpur	June, 1857

Consequences of the Revolt

- Dissolution of East India Company - British government took direct control of India.
- Government of India Act 1858 - Established British Raj in India.

Social Reform Movements

Brahmo Samaj

- Founder - **Raja Rammohan Roy** (1828 AD)
- Objectives - Opposed Sati, polygamy, casteism, and untouchability
- Leaders - Devendranath Tagore and Keshav Chandra Sen

Prarthana Samaj

- Founder - **Atmaram Pandurang** (1867) under Keshav Chandra Sen's guidance
- Location - Bombay
- Notable Members - Ranade and Bhandarkar

Arya Samaj

- Founder - **Dayananda Saraswati** (1875)
- Location - Bombay, with headquarters later established in Lahore
- Notable Work - Satyarth Prakash

Ramakrishna Mission

- Founder - **Swami Vivekananda** (1897 AD)
- Notable Events
 - Participated in the World Religion Conference (1893).
 - Formed the **Vedanta Society** in New York (1896).

Theosophical Society

- Founded in 1876 by **Madame Blavatsky** and **Colonel Olcott** in New York, USA.
- International office established in 1882 in Adyar, near Madras.
- In 1893, **Annie Besant** took over leadership in India.
- In 1898, Annie Besant established the Central Hindu College in Banaras, which later became Banaras Hindu University in 1916.

Aligarh Movement

- Led by **Syed Ahmed Khan**.
- Founded Muhammadan Anglo-Oriental College in 1875 in Aligarh, which became **Aligarh Muslim University** in 1920.

Young Bengal Movement

- Established in Bengal in 1828 by Anglo-Indian **Henry Vivian Derozio**.
- Derozio founded the Academic Association and the Society for the Acquisition of General Knowledge.

Ahmadiyya Movement

- Led by **Mirza Ghulam Ahmed** in 1889.
- His principles were explained in his book **Bahrain-e-Ahmadiyya**.
- Mirza Ghulam Ahmed considered himself the incarnation of Krishna.

National Movement

Indian National Congress (INC)

- Formed in 1885 by **AO Hume**, a retired Civil Servant.
- First session held in Bombay under the presidency of **WC Bannerjee** with 72 delegates.
- Moderate leaders- Dada Bhai Naoroji, Badruddin Tayabji, Gopal Krishna Gokhale, Surendranath Bannerjee, Anand Mohan Bose.

Revolutionary Activities : Phase-I

- On June 22, 1897, the **Chapekar brothers** assassinated plague officers Ayerst and Rand in Poona to protest against British oppression during the plague epidemic.
- **VD Savarkar** founded the revolutionary organization Abhinav Bharat in 1904.
- **Shyamji Krishna Verma** established India House in London in 1905, serving as a hub for revolutionaries abroad. He is known as the 'Father of Revolutionaries.'
- In 1908, **Khudiram Bose** and Prafulla Chaki attempted to assassinate Judge Kingsford of Muzaffarpur. **Prafulla Chaki** committed suicide, while Khudiram Bose was executed.
- **Anant Laxman Kanhere** was hanged in 1909 for assassinating Judge Jackson of Nasik.
- **Madanlal Dhingra** was executed in 1909 for assassinating Curzon Wyllie in London.

- In 1912, **Ras Bihari Bose** orchestrated a bomb attack on Lord Hardinge's procession in Delhi, injuring the Viceroy but failing to assassinate him.

Partition of Bengal

- Date - 16th October, 1905.
- Lord Curzon divided Bengal into Eastern Bengal (with Assam) and the rest of Bengal.
- It separated the largely Muslim Eastern areas from the largely Hindu Western areas, implementing the 'divide and rule' policy.

Swadeshi Movement (1905)

- Originated from anti-partition movement of Bengal as Boycott Movement.
- Key leaders: Lal, Bal, Pal, and Aurobindo Ghosh.
- INC adopted the Swadeshi call at the Banaras session, 1905, presided over by GK Gokhale.
- **Rabindranath Tagore** wrote a song called 'Amar Sonar Bangla', later became the national anthem of Bangladesh.
- In December 1906, INC, under Dadabhai Naoroji, adopted 'Swaraj' (Self-government) as the goal at the Calcutta Session.

Muslim League (1906)

- Founded by Aga Khan, **Nawab Salimullah** of Dhaka, and Nawab Mohsin-ul-Mulk on 13th December, 1906.
- It supported the Partition of Bengal and opposed the Swadeshi Movement.
- It demanded special safeguards and a separate electorate for Muslims. Its first session was held at Amritsar (1908) under the leadership of **Sayyid Ali Imam**.

Surat Split (1907)

- INC split into two groups: Extremists and Moderates due to disagreements on the nature of the Swadeshi Movement.
- Extremists led by Lal, Bal, Pal and Moderates led by GK Gokhale.

Ghadar Party (1913)

- Established in 1913 with headquarters in San Francisco.
- Founded by Lala Hardayal.
- President - **Sohan Singh Bhakna**

Delhi Darbar (1911)

- A grand court was organised in Delhi to welcome King George V and Queen Mary.
- Announced the cancellation of the Partition of Bengal and the transfer of India's capital from Calcutta to Delhi.
- In April 1912, Delhi officially became the capital of India.

Home Rule Movement (1916)

- Started by **BG Tilak** in April, 1916 at Poona, and by **Annie Besant** and S. Subramania Iyer at Adyar (near Madras) in September 1916.
- Tilak raised the slogan - "Swaraj is my Birth Right and I shall have it."

Lucknow Pact (1916)

- Presided by **Ambika Charan Majumdar**, a moderate leader.
- **Two Key Events**
 - Extremists, led by Tilak, were readmitted into the Congress fold.
 - Muslim League and Congress joined forces, presenting their demands together to the British Government.

National Movement (Gandhian Era)

Mahatma Gandhi

- Birth - 2nd Oct, 1869 (Gujarat, Porbandar)
- Went to South Africa - 1893
- Return to India - January, 1915
- Sabarmati Ashram was established in 1916 (Ahmedabad)

Champaran Satyagraha (1917)

- A peasants' uprising led by Mahatma Gandhi in Champaran district, Bihar.
- The first Civil Disobedience Movement in India.

- Other leaders involved: Rajendra Prasad, Mazhar-ul-Haq, Mahadeo Desai, Narhari Parekh, JB Kripalani, etc.

Kheda Satyagraha (1918)

- The first Non-Cooperation Movement led by Gandhiji.
- Launched in Kheda, Gujarat to support peasants unable to pay land tax due to crop failure.
- Key leaders - Sardar Vallabhbhai Patel, Narhari Parekh, Mohanlal Pandya.

Rowlatt Act (18th March, 1919)

- To end the revolutionary spirit in India, British Government appointed a committee under the chairmanship of Justice **Sir Sydney Rowlatt**
- Gave unlimited powers to the government to arrest and imprison suspects without trial.
- Suspended the right of **Habeas Corpus**, which was a cornerstone of civil liberties in Britain.

Jallianwala Bagh Massacre

(13th April, 1919)

- On 13th April 1919 (Vaisakhi), a public meeting was held at Jallianwala Bagh, Amritsar, to protest the arrest of **Dr. Satyapal** and **Saifuddin Kitchlew**.
- The meeting was organized by Hansraj, who later became a government witness.
- **General O'Dyer** ordered firing on thousands of unarmed people without warning, killing around 1000 people.
- In 1940, **Udham Singh** avenged the massacre by killing General O'Dyer in London.
- In protest, **Rabindranath Tagore** returned his knighthood, Mahatma Gandhi returned his Kaiser-e-Hind title.

Khilafat Movement (1920)

- Muslims were angered by the British treatment of Turkey in the treaty following World War I.
- The movement was started by the Ali brothers, **Mohd. Ali** and **Shaukat Ali**.
- Led jointly by the Khilafat leaders and the Congress.

Non-Cooperation Movement (1920)

- Resolution passed at Congress' Calcutta Session in September 1920.
- It was the first mass-based political movement led by Gandhiji.
- Boycott of British courts and refusal to attend government durbars by Congress leaders and lawyers.

Chauri-Chaura Incident (1922)

- In Chauri-Chaura, Gorakhpur, UP, police allegedly beat up volunteers protesting against liquor sale and high food prices.
- A violent mob set fire to a police station, killing 22 policemen.
- Gandhiji called off the movement, stating that people were not ready for revolt through Ahimsa (non-violence).

Swaraj Party

- Formed on 1 January 1923 by C.R. Das and Motilal Nehru.
- Aimed to secure increased self-governance and political liberty for Indians under British rule.

Revolutionary Activities : Phase II

- Sachindra Sanyal, Jogesh Chandra Chatterjee, Ram Prasad Bismil, and Chandra Shekhar Azad formed the Hindustan Republican Association (HRA) in October 1924 in Kanpur.
- On 9th August 1925, HRA members stopped the 8 Down Saharanpur-Lucknow passenger train at Kakori and looted the government treasury, an event known as the Kakori Kand.
- In the **Kakori Conspiracy**, Ram Prasad Bismil, Ashfaqulla Khan, Roshan Singh, and Rajendra Lahiri were executed in Gorakhpur, Faizabad, Allahabad and Gonda, respectively.
- **Hindustan Socialist Republican Association** (HSRA) was founded by Chandra Shekhar Azad on 10th September 1928 in Delhi.
- On 17th December 1928, HSRA members Bhagat Singh, Rajguru and Chandra

Shekhar Azad assassinated Saunders in Lahore to avenge the death of Lala Lajpat Rai.

- Bhagat Singh and Batukeshwar Dutt threw a bomb in the Central Legislature on 8th April 1929 to protest British laws.
- **The Chittagong Armoury** was attacked in 1930 under the leadership of Master Surya Sen, a revolutionary from Bengal.
- Chandra Shekhar Azad was martyred in Alfred Park, Allahabad, during a police encounter on 27th February 1931.
- Bhagat Singh, Sukhdev, and Rajguru were hanged in Lahore on 23rd March 1931 for their revolutionary activities.

Simon Commission (1927)

- Constituted by John Simon to review the political situation in India.
- Arrived in India in 1928 to study constitutional reforms in British India.
- Indian leaders protested the commission's lack of Indian members, shouting "Simon Go Back."
- **Lala Lajpat Rai** opposed the commission, saying, "Every blow aimed at me is a nail in the coffin of British Imperialism."
- Lala Lajpat Rai was brutally beaten during a lathi charge in Lahore, leading to his death.

The Nehru Report (1928)

- Prepared by a committee headed by Motilal Nehru.
- The committee included Tej Bahadur Sapru, Subhash Chandra Bose, Mangal Singh, and GR Pradhan as members.
- Created in response to the Simon Commission and Lord Birkenhead's challenge.
- Supported the Dominion Status of India.



Lahore Session (1929)

- Held on 19th December, 1929, under the leadership of Jawaharlal Nehru.
- The INC declared Poorna Swaraj (complete independence) as its ultimate goal.

- Decided to celebrate 26th January, 1930 as Independence Day throughout the country.

Civil Disobedience Movement (1930)

- On 13th January, 1930, Mahatma Gandhi presented an **11-point proposal** to Lord Irwin.
- Launched due to the non-acceptance of these demands.
- On 12th March, 1930, Gandhiji, with 78 volunteers, began the 240-mile **Dandi March** from Sabarmati Ashram.
- On 6th April, 1930, they broke the Salt Law, marking the start of the Civil Disobedience Movement.



- Subhas Chandra Bose** compared the Dandi March to Napoleon's journey from Elba to Paris.
- During the journey, **Kamala Devi Chattopadhyay** persuaded Gandhiji to include women in the movement alongside men.

- Discussions with British Prime Minister Ramsay MacDonald failed over the issue of Communal Representation.
- Failure led to the resumption of the Civil Disobedience Movement.

Third Round Table Conference (1932)

- Convened on 17th November 1932.
- INC boycotted the conference; only 46 delegates attended.

Tej Bahadur Sapru and BR Ambedkar, the only participants in all three conferences.

Communal Award (1932)

- Communal Award (16 August 1932)
- Announced by British Prime Minister **Ramsay MacDonald**, it introduced separate electorates for Dalit classes (then called 'Depressed Classes').
- This decision aimed to divide Indian society further by communal lines.
- Gandhiji opposed the Communal Award as it segregated Dalits from the Hindu fold.
- He began a fast unto death on 20 September 1932 while in jail, demanding a united Hindu electorate.

First Round Table Conference (1930)

- Held on 12th November 1930 in London, first formal dialogue between the British and Indians as equals.
- The **Hindu Mahasabha** and Muslim League participated, but the Indian National Congress (INC) did not, leading to its failure.

Gandhi-Irwin Pact (1931)

- Signed on 5th March 1931 between Lord Irwin (British representative) and Gandhiji (representing the INC).
- The pact agreed to
 - End the Civil Disobedience Movement.
 - INC's participation in the Second Round Table Conference.

Second Round Table Conference (1931)

- Held in London, with Gandhiji representing the INC.

Poona Pact (1932)

- Signed on 24th September 1932 between **Dr. BR Ambedkar** (representing the depressed classes) and **Gandhiji**.
- Facilitated by leaders like Madan Mohan Malaviya, Purushottamdas Tandon, Rajendra Prasad, and C. Rajagopalachari.
- The Pact was seen as a compromise to address Gandhiji's concerns while securing representation for the Dalit community.

Key Terms of the Pact

- Joint electorates were retained for Hindus, including Dalits.
- Reserved seats for Harijans (Dalits) increased
 - From 71 to 147 in provincial legislatures.
 - Central Legislature seats increased by 18%.

August Offer (1940)

- Proposed Dominion status as India's ultimate goal and promised the formation of a Constituent Assembly after World War II.
- Congress rejected the August Offer.
- **Lord Linlithgow** was the Viceroy at that time.

Demand of Pakistan

On March 23, 1940, at the Lahore Session of the Muslim League (presided over by Muhammad Ali Jinnah), the demand for a separate Muslim nation, Pakistan, was officially made.

Quit India Movement (1942)

- On August 8, 1942, during the All-India Congress Committee session in Bombay.
- Mahatma Gandhi called for the British to leave India, launching the Quit India Movement.
- Many members of the Indian National Congress (INC) were arrested during this movement.
- Gandhiji gave the famous slogan, 'Do or Die', urging Indians to fight for complete independence.
- The movement concluded in 1945 with the release of jailed freedom fighters.
- **Muslim League** opposed this movement. Pakistan Day was celebrated on 23rd March, 1943.



Cripps Mission (1942)

- Chaired by Stafford Cripps, arrived in India on 23rd March 1942.
- It proposed the establishment of an Indian Federation with Dominion status.
- Post-war, the Constituent Assembly members were to be elected by the provincial assemblies.
- Mahatma Gandhi described the Cripps Plan as a "post-dated cheque" to express his dissatisfaction.

Rajagopalachari Formula (1944)

- It proposed immediate Muslim League support for the Indian Independence Movement.
- Post-World War II, self-determination rights for Muslim-majority areas were suggested.
- Arrangements for defense, commerce, and telecommunications were to be made in case of partition.
- Jinnah rejected the formula as he adhered to the two-nation theory.

Wavell Plan (Shimla Conference, 1945)

- Proposed that, apart from the Governor-General and Commander-in-Chief, all members of the Executive Council would be Indians.
- Suggested equal representation of Hindus and Muslims in the council.
- The Muslim League demanded sole authority to nominate all Muslim members of the council.
- The conference failed due to the inflexible stance of the Muslim League.



Wavell Plan (Shimla Conference, 1945)

Cabinet Mission (1946)

- Arrived in India on 24 March 1946.
- Members - **Lord Pethick Lawrence**, **Stafford Cripps**, and **A. V. Alexander**.
- Lord Wavell was serving as the Viceroy of India at that time.

Key Recommendations

- Rejected the Muslim League's demand for Pakistan.
- Provinces were granted autonomy and residuary powers.
- Members of the Constituent Assembly to be chosen by provincial legislatures.

- Proposed a common centre for defense, foreign affairs, and communications.
- Princely states were free to align with either the successor government or the British.
- June 1946: Both Congress and the Muslim League accepted the plan.
- 29th July, 1946: Muslim League withdrew its acceptance and declared 16th August 1946 as Direct Action Day.
- 2nd September, 1946: An interim government was formed under Jawaharlal Nehru.
- October 1946: The Muslim League joined the Interim government.

Attlee's Declaration (20 Feb. 1947)

- Announced the transfer of power by 30th June 1948.
- Allowed transfer through either a Governor-General Council or provincial governments in specific areas.

Mountbatten Plan (3rd June 1947)

- **Lord Mountbatten**, the last British Viceroy, arrived on 24th March 1947.
- The Mountbatten Plan, announced on 3rd June 1947, proposed the partition of India into India and Pakistan.
- The Indian Independence Bill was introduced in the British Parliament on 4th July 1947 and approved on 18th July 1947.

Development of Education during British Rule

Year	Development of Education	Founder
1854	Woods Dispatch	Charles Wood
1882	Hunter Commission	W.W. Hunter
1902	University Commission	Thomas Raleigh
1917	Sadler Commission	Michael Sadler

Major Indian National Congress Sessions

Year	Location	President
1885	Bombay	W.C. Bonnerjee
1886	Calcutta	Dadabhai Naoroji
1887	Madras	Syed Badruddin Tyabji

Year	Location	President
1888	Allahabad	George Yule
1889	Bombay	Sir William Wedderburn
1890	Calcutta	Pherozshah Mehta
1891	Nagpur	P. Ananda Charlu
1893	Lahore	Dadabhai Naoroji
1896	Calcutta	Rahimtulla M. Sayani
1919	Amritsar	Motilal Nehru
1920	Nagpur	C. Vijayaraghavachariar
1922	Gaya	C.R. Das
1924	Belgaum	M.K. Gandhi
1925	Kanpur	Sarojini Naidu
1929	Lahore	Jawaharlal Nehru
1931	Karachi	Vallabhbhai Patel
1937	Faizpur	Jawaharlal Nehru
1938	Haripura	Subhas Chandra Bose
1947	Delhi	Dr. Rajendra Prasad

Newspaper, Journal and their Founder

Newspaper/Journal	Year	Founder
Bengal Gazette	1780	James Augustus Hicky
Samvad Kaumudi	1819	Raja Ram Mohan Roy
Mirat-ul-Akhbar	1822	Raja Ram Mohan Roy
Rast Goftar	1854	Dadabhai Naoroji
Indian Mirror	1862	Devendra Nath Tagore
Amrita Bazar Patrika	1868	Sisir Kumar Ghosh and Motilal Ghosh
Tahzib-ul-Akhlaq	1871	Sir Syed Ahmed Khan
Kesari	1881	BG Tilak
Maratha	1881	BG Tilak
Udbodhan	1899	Swami Vivekananda
Vande Mataram	1905	Aurobindo Ghosh
Bombay Chronicle	1910	Pheroz shah Mehta
Comrade	1911	Maulana Mohammad Ali
Al-Hilal	1912	Abul Kalam Azad
Al-Balagh	1912	Abul Kalam Azad
New India	1914	Annie Besant
Young India	1919	MK Gandhi
Independent	1919	Motilal Nehru
Mook Nayak	1920	BR Ambedkar
Nav Jeevan	1929	MK Gandhi
Hindustan Times	1924	Sunder Singh Lyallpuri

Civil and Peasant Uprisings/Movements

Pre-1857 Movements

Movement/Organisation	Location	Leaders
Sanyasi Revolt (1763-1800)	Rangpur to Dhaka	Majnu Shah Fakir, Chirag Ali, Musa Shah, Bhawani Pathak & Devi Chaudharani
Poligar Revolt (1795-1805)	South India	Kattabomman Nayakan
Paika Rebellion (1817)	Odisha	Bakshi Jagabandhu, Bidyadhar, Mukunda Deva
Pagal Panthis (1825-35)	Bengal	Karam Shah, Tipu Shah
Sambhalpur Uprisings (1840)	Sambhalpur	Surendra Sai
The Kuka Revolt (1840)	West Punjab	Bhagat Jawahar Mal and Baba Balak Singh
Gadkari Rebellion (1844-45)	Kolhapur	Gadkaris

Post-1857 Movements

Movement/Organisation	Location	Leaders
Indigo Revolt (1860)	Nadia district of Bengal	Digambar Biswas, Bishnu Biswas, Harish Chandra Mukherjee
Poona Sarvajanik Sabha (1870)	Pune	MG Ranade
Pabna Agrarian Uprising (1873)	Pabna district of Bengal	Shah Chandra Roy, Shambhu Pal
Ramosis Uprising (1877-87)	Ramosis, Maharashtra	Vasudev Balwant Phadke
Bijolia Movement (1905, 1913, 1916, 1927)	Rajasthan	Sitaram Das, Vijay Singh Pathak
Champaran Satyagraha (1917)	Bihar	Gandhiji, Dr. Rajendra Prasad, Raj Kumar Shukla
Kheda Satyagraha (1918)	Gujarat	Gandhiji
United Province Kisan Sabha (1918)	Uttar Pradesh	Gauri Shankar Mishra, Indra Narayan Dwivedi
Awadh Kisan Sabha (1920)	Awadh	Jawaharlal Nehru, Baba Ram Chandra
Eka (1921)	Awadh	Madari Pasi
Moplah Rebellion (1835-1921)	Malabar region (Kerala)	Sayyid Ali, Sayyid Fazi
Andhra Ryots Association (1928)	Andhra Pradesh	NG Ranga
Bardoli Satyagraha (1928)	Bardoli (Gujarat)	Vallabhbhai Patel
All India Kisan Sabha (1936)	United Province	Swami Sahajanand
Tebhaga Movement (1946)	Tebhaga (Bengal)	Kamparam Singh, Bhavan Singh
Telangana Movement (1946-51)	Hyderabad	Praja Mandal & Communist Party of India

Reform Movements and Organisations

Organisation	Year	Founders/ Leaders
Asiatic Society	1784	William Jones
Dharma Sabha	1829-30	Radhakant Dev
Banga Bhasha Prakashika Sabha	1836	Gaurishankar Tarkabagish
Land Holder Society	1838	Dwarkanath Tagore
Society for the Acquisition of General Knowledge	1838	Henry Louis Vivian Derozio
Tattva Bodhini Sabha	1839	Devendra Nath Tagore
British India Society	1839	William Adam
Paramhansa Mandali	1840	Gopal Hari Deshmukh

Organisation	Year	Founders/ Leaders
British Sarvajanik Sabha	1843	Dada Bhai Naoroji
Manav Dharm Sabha	1844	Mehta Ji Durgaram Mancharam
Rahnumai Mazdayan Sabha	1851	Dada Bhai Naoroji
British India Association	1851	Devendra Nath Tagore
Bombay Presidency Association	1852	Jagganath Shankarseth
Widow Remarriage Association	1861	Vishnu Shashtri and MG Ranade
Scientific Society	1864	Sir Syed Ahmad Khan
East India Association	1866	Dada Bhai Naoroji
National Indian Association	1867	Mary Carpenter
Indian Reform Association	1870	Keshab Chandra Sen
Poona Sarvajanik Sabha	1870	MG Ranade, GV Joshi, SH Chiplundkar
Indian League	1875	Shishir Kumar Ghosh
Indian Association	1876	AM Bose, Surendranath Banerjee
National Mohammdan Association	1878	Syed Ameer Ali
United India Committee	1883	Womesh Chandra Bonnerjee
Deccan Educational Society	1884	VK Chiplunkar, BG Tilak, MB Namjoshi

Major Conspiracy Cases During British Rule

Case	Related Facts
Alipur Conspiracy Case (1908)	Khudiram Bose and Prafulla Chaki threw bomb on Chief Presidency Magistrate of Muzaffarpur DH Kingsford.
Delhi Conspiracy Case (1912)	Headed by Rash Behari Bose to assassinate the then Viceroy of India, Lord Hardinge.
Lahore Conspiracy Case (1928-31)	This case was against Bhagat Singh, Rajguru and Sukhdev who killed Saunders mistakenly.
Peshawar Conspiracy Case (1922-1927)	It was a trial against the Muhajirs, who had tried to enter in India from Russia to start a Communist Movement in India.
Kakori Conspiracy Case (1925)	It was organised by Hindustan Republican Association.
Meerut Conspiracy Case (1929)	Several Communists including three Englishmen were arrested for organising an Indian railway strike.
Chittagong Armoury Raid (1930)	It was a plan to raid armoury of police by fighters led by Surya Sen.

Popular Slogans and Statements

 'Inqulab Zindabad' Bhagat Singh	'Jai Jawan Jai Kisan' Lal Bahadur Shastri 'Maro Firangi ko' Mangal Pandey	'Who lives if India Dies' Jawaharlal Nehru 'Hindi, Hindu, Hindustan' Bhartendu Harishchandra	 I think Satyagraha is the only way to stop terrorism Mahatma Gandhi
'I am part of the indivisible unity that is Indian nationality' Abul Kalam Azad 'Sarfaroshi Ki Tamanna Ab Hamare Dil Mein Hai' Ram Prasad Bismil	 Jai Hind 'Give me blood, I will give you freedom' Subhas Chandra Bose	'Jai Jagat' Vinoba Bhave 'Kar Mat Do' Sardar Patel	'Go back to Vedas' Dayanand Saraswati
'Saare Jahaan Se Achcha Hindustaan Hamara' Iqbal 'Simon Commission Go Back' Lala Lajpat Rai	'If your blood does not rage, it is water that flows in your vein' Chandra Shekhar Azad 'Swaraj is my Birth right and I shall have it' Bal Gangadhar Tilak	'Vijayi Vishwa Tiranga Pyara' Shyam Lal Gupta 'Parshad'	



GEOGRAPHY

World Geography

Universe

- Universe encompasses all matter and space including galaxies, stars and planets.
- Study of universe is Astronomy.
- Our Solar System is in Milky Way galaxy (Akash Ganga).
- Nearest galaxy to the Milky Way is Andromeda.
- The Big Bang Theory explains the formation of universe, proposed by **Georges Lemaitre**.
- Geocentric model (Earth is the centre of Universe) was proposed by **Ptolemy**.
- Heliocentric model (Sun is the centre of Universe) was given by **Copernicus**.
- A group of stars that appear to form a pattern in the night sky **constellation**.
- **Ursa Major** or Big Bear (Saptarishi) group of seven stars.
- **Ursa Minor** (Little Bear) constellation in the Northern sky, forms the Little Dipper.
- Largest constellation in the sky - **Hydra**
- Brightest star in Milky way galaxy - **Sirius** (Dog Star)
- Nearest stars to Earth - Sun and Proxima Centauri

Solar System

- Comprises the Sun, eight planets and dust particles.
- Increasing order of planets
 - According to distance from the Sun: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.
 - According to size: Mercury, Mars, Venus, Earth, Neptune, Uranus, Saturn, Jupiter.
- **Terrestrial planets** (metal and rock planets) Mercury, Venus, Earth and Mars
- **Jovian planets** (Giant gaseous planets) Jupiter, Saturn, Uranus and Neptune
- **Dwarf planets** (smaller than planets) Pluto, Ceres, Eris and Makemake

Planets : Rotation, Revolution & Satellites

Planets	Rotation	Revolution	Satellites
Mercury	58.6 days	88 days (fastest)	0
Venus	243 days (slowest)	225 days	0
Earth	24 hours	365.25 days	1
Mars	24.6 hours	686 days	2
Jupiter	9.9 hours (fastest)	11.9 years	95
Saturn	10.7 hours	29.5 years	146
Uranus	17.2 hours	84 years	28
Neptune	16.1 hours	165 years (slowest)	14

Important Facts about Planets

Jupiter	Biggest Planet, Fastest Rotation in Solar System
Earth	Blue Planet, Densest Planet
Venus	Brightest, Evening Star, Morning Star, Hottest, Nearest Planet to Earth, Slowest Rotation in Solar System, Earth's Twin
Mercury	Fastest Revolution in Solar System, Nearest Planet to Sun, Smallest
Neptune	Coldest, Farthest from Sun, Slowest Revolution in Solar System
Ganymede	Biggest Satellite (Jupiter)
Uranus	Green Planet
Saturn	Planet with Maximum Satellites
Mars	Red Planet
Venus and Uranus	Planets rotating East to West direction
Deimos	Smallest Satellite (Mars)
Titan	Only Satellite with Atmosphere Like Earth

Asteroids are tiny celestial bodies, revolving around the Sun

Asteroid Belt found between Mars and Jupiter

Meteoroids are small, rocky or metallic space objects that revolve in the solar system.

Meteors are known as shooting star.

Sun

- The Sun is a gaseous sphere, consist of hydrogen (71%), helium (26.5%) and 2.5 % other elements.
- Layers of the Sun - core, photosphere, chromosphere and corona (from the core outwards)
- Average distance of the Earth - 14.98 crore km
- It rotates on its axis from East to West.
- It takes about 8 minutes and 18 seconds for the sunlight to reach the Earth.
- Maximum distance of the Sun from the Earth - **Aphelion**, (3rd January every year).
- Minimum distance of the Sun from the Earth - **Perihelion**, (4th July every year).

Moon (Earth's Natural Satellite)

- The average distance of the Moon from the Earth is 3,84,400 km.
- Period of rotation and revolutions - 27 days, 7 hours, 43 min and 11.47 sec.
- Its light reaches the Earth in 1.28 seconds.
- It is also called a **fossil planet**.
- **Apogee** - Maximum distance of the Moon from the Earth.
- **Perigee** - Minimum distance of the Moon from the Earth.

Earth

- Shape - **Geoid** (slightly flattened at the poles and bulges at the equator).
- **Aristotle** was the first to consider the Earth to be spherical.
- Territorial area - 29.2% of total area.
- As we go deeper into the Earth, the temperature increases by 1°C for every 32 m depth.

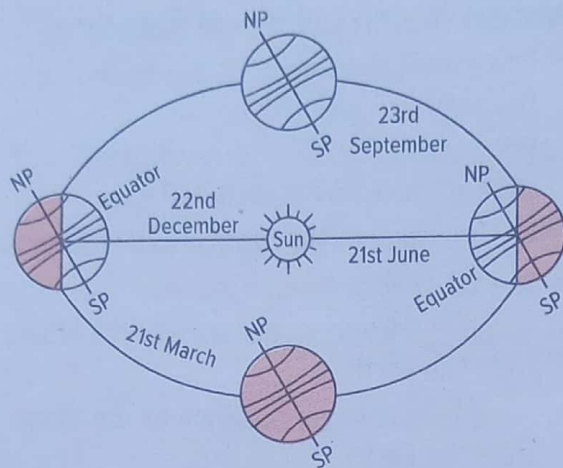
Motion of Earth

Rotation

- The Earth's spinning on its axis, which takes 23 hours, 56 minutes and 4 seconds to complete.
- The rotation causes day and night in the Earth. The Earth's axis is tilted at a 23.5° angle to the plane of its orbit

Revolution

- Earth revolves around the Sun from West to East or in an anticlockwise direction in 365.24 days.
- Revolution and earth's tilt, is the primary cause of the seasons.
- Dates when days and nights are equal: 21st March (Vernal Equinox), 23rd September, (Autumnal Equinox).
- Longest day in Northern Hemisphere: 21st June, (Summer Solstice) Sun is vertically over head at Tropic of Cancer.
- Longest night in Northern Hemisphere: 22nd December, (Winter Solstice) Sun is vertically over head at Tropic of Capricorn.



Revolution of the Earth

Latitudes and Longitude

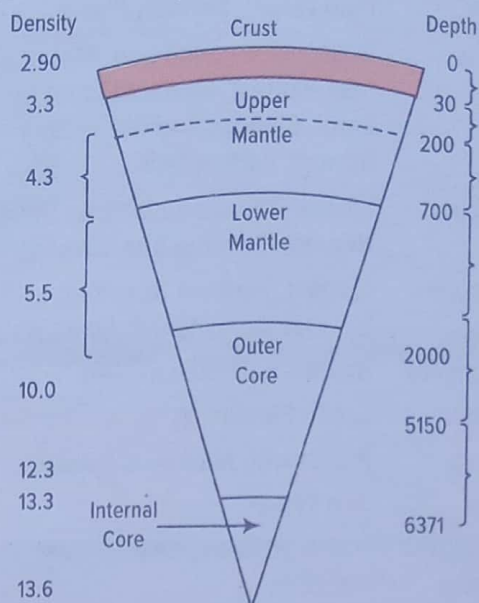
- **Latitude** Imaginary lines drawn on the Earth's surface parallel to the equator.
- One degree of latitude is approximately equal to 111 kilometres.
- **Equator** (0°) largest latitude that divides Earth in two equal hemispheres (North and South).
- **Important Latitudes** Tropic of Cancer (23.5°N), Tropic of Capricorn (23.5°S), Arctic Circle (66.5°N), Antarctic Circle (66.5°S).
- **Longitude** (Meridians) imaginary lines that run from the North Pole to the South Pole, measures the distance East or West.
- 1° change of longitude corresponds to 4 minutes difference in time.
- **Prime Meridian** (180°) is a line of longitude that is defined as 0° , passes through Greenwich near London.
- The **International Date Line** (IDL) is based on the 180° line of longitude.
- The line makes a difference of one day between the East and West.

Eclipse

- **Solar Eclipse** Occurs when the Moon comes between the Sun and Earth, blocking sunlight from reaching Earth.
- **Lunar Eclipse** Occurs when Earth comes between the Sun and the Moon, casting Earth's shadow on the Moon.

Interior of the Earth

The Earth's interior is made up of three main layers: the crust, the mantle and the core.



Internal Structure of the Earth

- **Eduard Suess** explained the interior of Earth on the basis of chemical composition as SIAL, SIMA and NIFE.
 - **SIAL** (Silicon-Aluminium) Upper part of the crust.
 - **SIMA** (Silicon-Magnesium) Lower part of the crust.
 - **NIFE** (Nickel-Iron) Outer part of the core.
 - **Oxygen** (46.8%) is the most abundant element in the Earth's crust.
 - **Silicon** (28 %) is the most abundant element on Earth.

Rocks

Rocks are made up of individual substances called minerals.

Types of Rocks

1. **Igneous rocks** formed when magma or lava cools and solidifies.
2. **Sedimentary rocks** formed when deposits of pre-existing rocks or organic material accumulate.
3. **Metamorphic rocks** formed when igneous or sedimentary rocks are transformed by intense heat and pressure within the Earth's crust.

Metamorphism in Rocks

Original Rock	Type of Rock	Metamorphic Rocks
Granite	Igneous	Gneiss
Basalt	Igneous	Green-stone
Limestone	Sedimentary	Marble
Coal	Sedimentary	Graphite, Coal
Sandstone	Sedimentary	Quartzite
Shale/Clay	Sedimentary	Slate, Mica, Schist

Earthquake & Volcanoes

Earthquake

- The sudden release of energy in the Earth's crust that causes vibrations and ground shaking.
- Focus** is the point beneath the Earth where earthquake originates.
- Epicentre** is the point just above the focus on the Earth's surface.
- Richter Scale** measures the magnitude of an earthquake.
- Seismograph** measures the intensity of earthquake waves.
- Mercalli Scale** measures the intensity of shaking.

Volcanoes

- Sudden eruption of hot magma (molten rock), gases, ash and other material from inside the Earth to its surface.
- Ring of Fire** Hundreds of active volcanoes found on the land near the edges of the **Pacific Ocean**.

World's Major Volcanoes

Volcano	Country/Place
Cotopaxi (world's highest active volcano)	Ecuador
Ojos del Salado	Argentina–Chile
Mauna Loa	USA (Hawaiian Islands)
Mount Erebus	Antarctica
Etna	Italy (Sicily)
Saint Helena	African Continent
Vesuvius	Italy (Bay of Naples)
Kilauea	USA (Hawaiian Islands)
Stromboli	Island of Sicily (Italy)

Types of Mountains

Type	Example
Folded or Twisted Mountain	Himalayas (Asia), Alps (Europe), Rockies (North America), Andes (South America)
Block or Blocker Mountain	Vindhyachal and Satpura (India), Vosges (France), Black Forest (Germany), Sierra Nevada (California)
Residual Mountain	Vindhyachal, Aravalli, Satpura, Nilgiri, Eastern Ghats, Western Ghats (India), Highlands (Scotland), Sierra (Spain), Appalachian (America)

Major Mountain Ranges of the World

Mountain Range	Location	Highest Peak	Height (m)
Himalaya	Asia	Mount Everest	8,848
Karakoram	Asia	Godwin-Austen (K2)	8,611
Andes	South America	Aconcagua	6,960
Alaska Range	Alaska (USA)	Mount McKinley (Denali)	6,194
Caucasus Range	Europe	Elbrus	5,633
Alps	Europe	Mount Blanc	4,807
Rocky Mountains	North America	Mount Elbert	4,400
Atlas Mountains	Africa	Jbel Toubkal	4,165
Great Dividing Range	Australia	Mount Kosciuszko	2,228
Ural Mountains	Russia	Mount Narodnaya	1,894

Major Plateaus of the World

Plateaus	Situated
Patagonia Plateau	South America (Argentina)
Piedmont Plateau	North America
Deccan Plateau	India
Anatolian Plateau	Türkiye
Indo-China Plateau	Laos, Cambodia and Vietnam
Abyssinian Plateau	Ethiopia and Somalia
Chiapas Plateau	Mexico
Colorado Plateau	North America

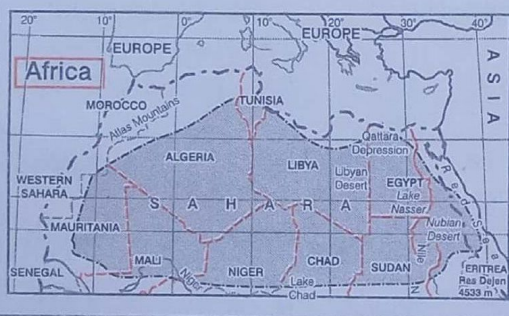
Major Grasslands of the World

Grasslands	Country
Pampas	Argentina
Prairie	USA and Canada
Veld	South Africa
Downs	Australia
Canterbury	New Zealand
Steppe	Hungary, Ukraine and Central Asia

Major Deserts of the World

Sahara Deserts

- Area – 92,00,000 km²
- Country – 11 (Algeria, Chad, Libya, Mali, Mauritania, Niger, Sudan, Tunisia, Egypt, Morocco, Western Sahara)



Desert Name	Area (sq km)	Location
Gobi	12,95,000	Mongolia, China
Kalahari	9,30,000	Botswana
Taklamakan	3,37,000	Xinjiang (China)
Karakum	3,50,000	Turkmenistan
Thar	2,00,000	India, Pakistan
Atacama	1,05,000	Northern Chile

Atmosphere

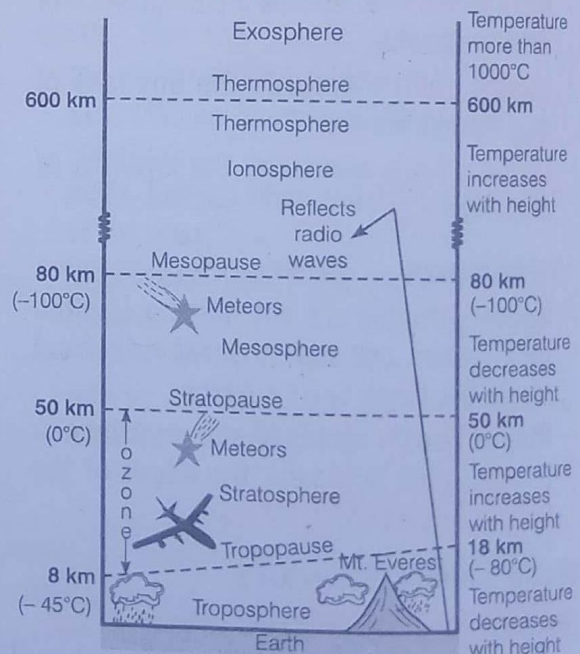
- It is a thin layer of various gases such as oxygen, nitrogen, carbon dioxide, dust particles and water vapour that surrounds the Earth.
- The average temperature of the atmosphere is 280K.
- The amount of water vapour in the atmosphere varies from 0% to 4% by volume.

Composition of Gases in Atmosphere

Nitrogen (78.08%), Oxygen (20.95%), Argon (0.93%), Carbon dioxide (0.04%), Neon (0.0018%), Helium (0.0005%), Methane (0.0002%)

Layers of Atmosphere

Layer	Features
Troposphere (0-16 km)	Weather phenomena occur, life exists.
Stratosphere (16-50 km)	Contains the ozone layer, absorbs harmful UV radiation.
Mesosphere (50-80 km)	Destroys meteors and comets before they reach the surface.
Thermosphere (80-640 km)	Extremely high temperatures, auroras, hosts the International Space Station (ISS).
Exosphere (Above 640 km)	Outermost layer, temperature is 50000°C



Structure of the Atmosphere

Permanent Winds

- The direction of the winds is determined by the Coriolis force caused by the Earth's rotation.
- Winds blow from high air pressure to low air pressure.

Types of Permanent Winds

Wind Belt	Direction
Trade Winds (0° to 30° latitude)	Northern Hemisphere: North-East Southern Hemisphere: South-East
Westerlies (30° to 60° latitude)	Northern Hemisphere: Southwest Southern Hemisphere: North-West
Polar Easterlies (60° to 90° latitude)	Blow from the high-pressure areas of the polar regions towards low-pressure areas

- Westerly winds that blow in the Southern Hemisphere
 - Between 40° and 50°: Roaring Forties
 - Between 50° and 60°: Furious Fifties
 - Between 60° and 70°: Screaming Sixties

Local Winds

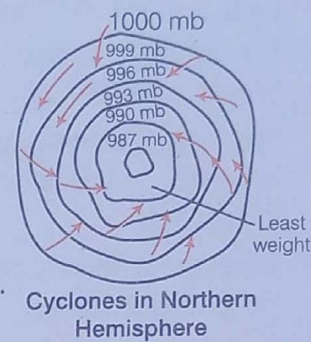
Local Wind	Region/Area
Föhn	Alps Mountains (Europe)
Chinook	North America (Rocky Mountains)
Sirocco	Sahara Desert (Africa), Mediterranean region
Harmattan	West Africa (Sahara region)
Willy-Willy	Australia (Western Australia)
Loo	India-Pakistan
Mistral	France (Southern)
Nor'wester	New Zealand

Types of Clouds

Cloud Type	Features
Cirrus Clouds	Found at the highest altitude; provide information about cyclones.
Cirrostratus Clouds	Create halos around the Sun and Moon; give information about cyclones.
Nimbostratus Clouds	Associated with heavy and continuous rainfall.
Cumulonimbus Clouds	Black in colour; cause heavy rainfall, thunderstorms, hail and lightning.
Cumulus Clouds	Shaped like a cauliflower; usually associated with clear weather.
Cumulonimbus Rain Clouds	Very wide and dense, shaped like mountains; bring torrential rains, hail and lightning.

Cyclones

- Cyclones are centres of low pressure, in which air pressure increases from the centre towards outside.



- Direction** – Anticlockwise (Northern Hemisphere) and Southern Hemisphere clockwise.
- Tropical cyclones occur mainly between 8° and 24° latitudes in both hemispheres.
- Due to absence of Coriolis force on the equator, by which tropical cyclones do not occur.
- Doldrums** – Area of low pressure around the equator.
- Strength of cyclones measured by **T-scale**.

Major Local Cyclones

Tornado	– Mississippi River Basin (USA)
Typhoon	– China, Japan, Philippines
Willy-Willy	– North-Western Australia
Hurricane	– Gulf of Mexico
Cyclone	– India

Anticyclones

- The nature of anticyclones is completely opposite to that of cyclones.
- There is a high-pressure area in their center, while low air pressure around the periphery.
- Direction** Clockwise (Northern Hemisphere) and anticlockwise (Southern Hemisphere).
- They are totally absent at the equator.
- Fronts** are not formed in anticyclones.
- Diameter of anticyclones is greater than that of cyclones and they spread over a much larger area.

Hydrosphere

- Earth is made up of about 71% water.
- The average annual temperature of the oceans is 63°F (17.2°C).
- Sea water temperature is higher in the Northern Hemisphere than Southern Hemisphere.
- The average salinity of the oceans is 35‰ (35 g/thousand).
- **Isohaline** the line drawn joining places with equal salinity.
- Major islands situated on Atlantic Ocean includes British Isles (Dagger Bank), Newfoundland (Grand Bank), Iceland, Bermuda, St. Helena, Georgia, Shetland, etc.

Lakes with the highest salinity (in descending order): Van Lake, Dead Sea, Great Salt Lake, Red Sea, Persian Gulf.

Oceans of the World

Ocean	Area (in million sq km)	Deepest Point
Pacific	165.25	Mariana Trench (11,022)
Atlantic	85.13	Mindanao (10,500)
Indian	70.56	Puerto Rico Trench (8,605)
Southern	21.96	Java Trench (7,725)
Arctic	15.56	Eurasian Basin (5,450)

Seas of the World

Name of the Sea	Area (sq km)	Depth (meters)
South China Sea	29,74,600	1,200
Mediterranean Sea	25,03,000	1,485
East China Sea	12,49,150	349
Andaman Sea	7,97,720	870
Black Sea	4,61,980	1,100
Baltic Sea	4,22,160	55

Currents of the Oceans

Atlantic Oceans

Gulf Stream	Warm	Canary Current	Cold
North Atlantic Drift	Warm	South Atlantic Current	Cold
Benguela Current	Cold	Brazil Current	Warm
Equatorial Current	Warm	Labrador Current	Cold
Florida Current	Warm	Antilles Current	Warm
Irminger Current	Warm	Sargasso Sea Current	Warm

Pacific Oceans

Kuroshio Current	Warm	California Current	Cold
Equatorial Current	Warm	North Pacific Current	Warm
South Pacific Current	Warm	Alaskan Current	Cold
Peru Current (Humboldt Current)	Cold	East Australian Current	Warm
Oyashio Current	Cold	Counter Equatorial Current	Warm

Indian Ocean

Agulhas Current	Warm	Somali Current	Warm
Equatorial Current	Warm	Monsoon Current	Warm
West Australian Current	Cold	Laccadive Current	Warm
Leeuwin Current	Warm	Peru Current (Humboldt Current)	Cold
Mozambique Current	Warm	Arabian Current	Warm

Important Straits of the World

<i>Strait</i>	<i>Water Bodies Joined</i>	<i>Area</i>
Malacca	Java Sea and Bay of Bengal	India and Indonesia
Magellan	South Pacific and South Atlantic Ocean	Chile
Bering	Arctic Ocean and Bering Sea	Alaska and Asia
Gibraltar	Mediterranean Sea and Atlantic Ocean	Spain and Africa
Palk	Bay of Bengal and Indian Ocean	India and Sri Lanka
Sunda	Java Sea and Indian Ocean	Indonesia

Major Rivers of the World

<i>River</i>	<i>Originate - Drain</i>	<i>Length</i>
Nile	Lake Victoria - Mediterranean Sea	6,650 km
Yangtze	Tibetan Plateau - East China Sea	6,300 km
Yellow River (Huang He)	Kunlun Mountains - Gulf of Bohai	5,464 km
Mekong	Tibetan Plateau - South China Sea	4,350 km
Amazon	Andes Mountains (Peru) - Atlantic Ocean	6,400 km
Mississippi-Missouri	Lake Itasca (USA) - Gulf of Mexico	6,275 km
Congo	Confluence of Lualaba and Luvua Rivers - Atlantic Ocean	4,700 km
Volga	Valdai Hills - Caspian Sea	3,687 km

Major Lakes of the World

<i>Lake</i>	<i>Area (sq km)</i>	<i>Location</i>
Caspian Sea	3,71,000	Eastern Europe and Iran
Lake Superior	82,414	Canada and USA
Lake Victoria	69,500	Uganda, Tanzania and Kenya
Aral Sea	30,700	Kazakhstan and Uzbekistan
Lake Michigan	58,000	USA
Great Bear Lake	31,800	Canada
Lake Baikal	30,500	Russia

Major Canals of the World

<i>Canal</i>	<i>Junction Points</i>
Suez Canal (193 km)	Mediterranean & Red Sea
Panama Canal (82 km)	Atlantic Ocean (Caribbean Sea) and Pacific Ocean
Kiel Canal (98 km)	North Sea and Baltic Sea
Erie Canal (584 km)	Lake Erie & Hudson River
Soo Canal (2.6 km)	Lake Superior & Huron

Major Islands of the World

<i>Island</i>	<i>Area (sq km)</i>	<i>Location</i>
Greenland	21,75,000	Arctic (North Pole) Ocean
New Guinea	7,77,000	Western Pacific Ocean
Borneo	7,25,545	Pacific and Indian Oceans
Madagascar	5,90,000	Indian Ocean
Baffin Island	4,76,065	Arctic Ocean
Sumatra	4,73,600	Indian Ocean
Honshu	2,28,000	Northwestern Pacific Ocean

Famous Border Lines Between Countries

38th Parallel
North Korea and South Korea

Radcliffe Line
India and Pakistan (partition line)

49th Parallel
USA and Canada

McMahon Line
India and China

Hindenburg Line
Germany and Poland

Durand Line
Afghanistan and Pakistan

Maginot Line
France and Germany

Indian Geography

- Total Area of India - 3,287,263 sq km (2.42% of the world's area).
- India ranks **seventh** in terms of area worldwide.
- Total Population of India - 1,210,854,977 (Census 2011), which is approximately 17.44% of the world's population.
- Latitude - 8°4' to 37°6' North Longitude: 68°7' to 97°25' East
- Latitudinal and Longitudinal Extent - 30°
- East to West Extension - 2,933 km
- North to South Extension - 3,214 km
- Land Border - 15,200 km

Extreme Points of India

- **Southernmost Point** (Mainland) Kanyakumari (Tamil Nadu)
- **Southernmost Point** (Including Islands) Indira Point (Great Nicobar Island)
- **Northernmost Point** Indira Col (Ladakh)
- **Westernmost Point** Gaurmoti or Guhar Moti (Gujarat)
- **Easternmost Point** Kibithu (Arunachal Pradesh)

- India has **28 States** and **8 Union territories**.
- Largest state by area - Rajasthan (342,239 sq km)
- Smallest state by area - Goa (3,702 sq km)
- State sharing borders with the maximum number of states - **Uttar Pradesh** (8 states).

- **Tropic of Cancer** passes through 8 states - Gujarat, Rajasthan, Madhya Pradesh, Chhattisgarh, Jharkhand, West Bengal, Tripura, and Mizoram.
- **India's Standard Time Line** (82.5°E) passes through Naini in Prayagraj.
 - Passes Through Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Odisha and Andhra Pradesh.
 - Indian Standard Time (IST) is 5 hours 30 minutes ahead of the Greenwich Mean Time (GMT).

Coastline and Borders

Coastline

- Mainland Maritime Boundary - 6,100 km.
- Including the islands, the total maritime boundary is 7,516.5 km.
- 9 States and 4 Union territories share their borders with the sea.
- Longest Coastline - Gujarat (1,600 km)

Border

- Total Land Border Length - 15,200 km.
- India shares border with seven countries.

India's Border Countries

Country	Border with
Bangladesh (4,096 km)	West Bengal, Assam, Meghalaya, Tripura, Mizoram (5)
China (3,488 km)	Ladakh, Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh (5)
Pakistan (3,323 km)	Gujarat, Rajasthan, Punjab, Ladakh, Jammu & Kashmir (5)
Nepal (1,751 km)	Uttar Pradesh, Bihar, West Bengal, Sikkim, Uttarakhand (5)
Myanmar (1,643 km)	Arunachal Pradesh, Nagaland, Manipur, Mizoram (4)
Bhutan (699 km)	Sikkim, West Bengal, Assam, Arunachal Pradesh (4)
Afghanistan (106 km)	Ladakh (1)

Himalayas

- Himalaya separates the plains of the Indian sub-continent from the Tibetan Plateau.
- Formed by the tectonic collision of Indian Plate and Eurasian Plate.
- Ranges of Himalayas - Greater Himalayas (Himadri), Lesser Himalayas (Himachal), and Shivalik.
- The highest peak in India is **Godwin Austen** (K2), located at the **Karakoram Range** (Pok).
- **Kangchenjunga** is the second highest peak in India located in Sikkim.

Major Peaks of the Himalayas

Peak	Height	Country
Mount Everest	8,848 m	Nepal
Kangchenjunga	8,586 m	India/Nepal
Lho Tse	8,516 m	Nepal/China
Makalu	8,481 m	Nepal
Cho Oyu	8,188 m	Nepal/China
Dhaulagiri	8,167 m	Nepal
Manaslu	8,163 m	Nepal
Nanga Parbat	8,126 m	India (Pok)
Annapurna	8,091 m	Nepal
Nanda Devi	7,817 m	India

Major Passes of India

State/UT	Passes
Jammu & Kashmir	Pir Panjal, Banihal, Burzil
Ladakh	Zojila, Chang La, Karakoram
Himachal Pradesh	Shipki La, Rohtang La, Baralacha La
Uttarakhand	Lipulekh, Niti, Thagla
Sikkim	Nathula, Jelep La
Arunachal Pradesh	Bomdila, Yangyap, Diphu
Manipur	Tuivai (Tujui)

Major Glaciers of India

Name	Location	Length
Siachen	Karakoram	76.6 km
Hispar	Karakoram	61 km
Baltoro	Karakoram	58 km
Khardung	Karakoram	41 km
Gangotri	Uttarakhand	26 km
Kangchenjunga	Nepal (Sikkim)	16 km

Peninsular Plateau

Plateau	Location
Deccan	Maharashtra, Madhya Pradesh, Chhattisgarh, Karnataka, Telangana and Andhra Pradesh
Malwa	Madhya Pradesh and Rajasthan
Vindhyan	Gujarat, Madhya Pradesh, Uttar Pradesh and Bihar
Maikal	Madhya Pradesh and Chhattisgarh
Chhota Nagpur	Jharkhand, Odisha, West Bengal, Bihar and Chhattisgarh
Dharwad	Karnataka and Maharashtra

Major Rivers of India

River	Point of Origin	Estuary/Mouth	Length (km)
Ganges	Gomukh Glacier near Gangotri	Bay of Bengal	2,525
Brahmaputra	Chemayungdung Glacier near Mansarovar Lake	Bay of Bengal	2,900
Sutlej	Rakastal near Mansarovar Lake	Chenab River	1,500
Ravi	Near Rohtang Pass in Kangra district	Chenab River	720
Jhelum	Sheshnag Lake near Berinag (Jammu & Kashmir)	Chenab River	725
Chenab	Baralachala Darsh (Lahaul-Spiti)	Indus River	1,974
Yamuna	Yamunotri Glacier, Bandarpooch	Ganga in Prayagraj	1,375
Chambal	Janapav Hill near Mhow (Madhya Pradesh)	Yamuna River	1,024
Gandak	Near Tibetan Plateau (Nepal)	Ganga River	814
Kosi	North of Gosainthan Peak (Nepal)	Ganga River	730
Ghaghara River	Tibetan Plateau, Nepal	Ganga River	1080
Krishna	Western Ghats near Mahabaleshwar	Bay of Bengal	1,400
Godavari	Trimbak village, Nashik, Maharashtra	Bay of Bengal	1,465
Kaveri	Brahmagiri Hill, Coorg, Karnataka	Bay of Bengal	800
Narmada	Amarkantak, Vindhya Mountains	Gulf of Khambhat	1,312
Mahanadi	Near Sihawa, Rampur district, Madhya Pradesh	Bay of Bengal	900
Luni	Nag Pahar, Aravalli Mountains, Ajmer	Gulf of Khambhat	495
Tapi	Satpura Range, Madhya Pradesh	Gulf of Khambhat	724

Major Waterfalls of India

Waterfall	River	Height (m)
Kunchikal	Varahi	455
Jog (Garsopa)	Sharavathi	253
Dudhsagar	Mandovi	310
Shivasamudram	Kaveri (Cauvery)	98
Hundru Falls	Subarnarekha	98
Gokak	Ghataprabha	55
Dhuandhar	Narmada	30

Major Lakes of India

Lake	Location
Dal Lake, Wular Lake, Sheshnag Lake, Verinag Lake	Jammu and Kashmir
Rajsamand Lake, Khichan Lake, Jaisamand Lake, Didwana Lake, Sambhar Lake	Rajasthan
Vembanad Lake	Kerala
Pulicat Lake	Tamil Nadu
Loktak Lake	Manipur
Chilika Lake	Odisha
Lonar Lake	Maharashtra
Kolleru Lake	Andhra Pradesh
Hussain Sagar	Telangana
Bhimtal Lake, Devtal Lake, Nainital Lake	Uttarakhand

Major River Valley Projects of India

Project	Location	River/Details
Bhima Project	Maharashtra	Bhima
Hirakud Hydroelectric Project	Odisha	Mahanadi (Longest Dam 4801 m)
Sardar Sarovar Project	MP, Gujarat, Maharashtra, Rajasthan	Narmada
Narmada Sagar Project	Madhya Pradesh	Narmada
Indira Gandhi Canal Project	Rajasthan, Punjab, Haryana	Ravi, Beas, Sutlej
Farakka Project	West Bengal	Ganga
Damodar Valley Project	West Bengal, Jharkhand	Damodar
Idukki Project	Kerala	Periyar

Project	Location	River/Details
Bhakra Nangal Dam Project	Haryana, HP, Rajasthan, Punjab	Sutlej (tallest dam, 226 m)
Salal Hydroelectric Project	Jammu and Kashmir	Chenab
Kosi Project	Bihar (India-Nepal)	Kosi
Son Project	Bihar	Son
Kakarapara & Ukai Project	Gujarat (Surat)	Tapti
Sabarmati Project	Gujarat (Mehsana)	Sabarmati
Gandhi Sagar Project	Madhya Pradesh	Chambal
Rana Pratap Sagar Project	Rajasthan	Chambal
Jawahar Sagar Project	Rajasthan	Chambal
Rihand Project	Uttar Pradesh	Rihand
Tehri Dam Project	Uttarakhand	Bhagirathi
Nagarjuna Sagar Project	Telangana, Andhra Pradesh	Krishna
Tungabhadra Project	Andhra Pradesh, Karnataka	Tungabhadra

Soil

Soil is formed through the breakdown of rocks and organic matter over the period of time.

Layers of Soil

- From top to bottom, they are
 - O Horizon** Organic matter (leaves, decomposed plants).
 - A Horizon** Top soil, rich in nutrients and organisms.
 - E Horizon** Leaching zone where minerals and nutrients are washed away.
 - B Horizon** Sub-soil, where minerals accumulate.
 - C Horizon** Weathered parent material.
 - R Horizon** Bedrock or unweathered material.

Soil Type Found in India

Alluvial Soil

Uttar Pradesh, Bihar, Punjab, Gujarat, Rajasthan, Haryana, West Bengal, Assam

Laterite Soil

Tamil Nadu, Kerala, Karnataka, Odisha, Hilly areas of Assam, Jharkhand

Black (Regur Soil)

Maharashtra, Western Madhya Pradesh, Northern Karnataka, Tamil Nadu, Bundelkhand, Gujarat

Red-Yellow Soil

Madhya Pradesh, Southern Uttar Pradesh, Nagpur & Meghalaya Plateau, Chhattisgarh, Jharkhand

Saline Soil

Highly irrigated areas of Punjab and Haryana

Peat Soil

North Bihar, Odisha, Tamil Nadu

Forest Soil

Ladakh, J&K, HP, Uttarakhand, UP, Assam, Sikkim, Arunachal Pradesh

Desert Soil

Western Rajasthan, Northern Gujarat, Southern Haryana

Soil-Crop Distribution in India

Soil Type	Crops Grown
Black Soil	Cotton, Sugarcane, Tobacco, Oil Seeds
Alluvial Soil	Rice, Wheat, Pulses, Vegetables
Laterite Soil	Coffee, Rubber, Cashew, Tapioca, Tea
Red-Yellow Soil	Rice, Ragi, Tobacco, Groundnut
Desert Soil	Jowar, Millet, Gram, Mustard

Soil Erosion

- It is the gradual wearing away of the top layer of soil by water, wind, or ice.
- Concept of Erosion Cycle by - **WM Davis**
- Affected states** Rajasthan, Madhya Pradesh (Chambal Valley), Gujarat, Jammu and Kashmir, Maharashtra
- Methods of conservation of soil** Contour Farming, Terracing, Controlled Grazing, Mixed Farming and Crop Rotation.

Major Crops in India

Crop Type	Crops Grown
Rabi Crops	Wheat, Gram, Barley, Mustard, Peas, Linseed, Toria
Kharif Crops	Rice, Jowar, Bajra, Maize, Cotton, Sugarcane, Soybean, Arhar

Crop Type	Crops Grown
Zaid Crops	Watermelon, Cucumber, Muskmelon, Green Gram, Black Gram, Sunflower
Cash Crops	Oilseeds, Sugarcane, Beetroot, Tea, Cotton, Jute, Coffee, Tobacco, Pulses

Crop-Producing States of India (2023-24)

Crop	Major Producing States
Rice	Telangana, UP, West Bengal
Wheat	UP, MP, Punjab
Maize	Karnataka, Bihar, MP
Jowar	Maharashtra, Karnataka, UP
Sugarcane	UP, Maharashtra, Karnataka
Cotton	Gujarat, Maharashtra, Telangana
Pulses	MP, Maharashtra, Rajasthan
Oilseeds	Rajasthan, Maharashtra, Gujarat
Peanuts	Gujarat, Rajasthan, MP

Names of Shifting Cultivation in India

Jhum (North-Eastern), Bewar and Dahiya (Bundelkhand), Dipa (Bastar district), Zira and Erka (Southern States), Walra (South-Eastern Rajasthan), Podu (Andhra Pradesh), Koman, Bringa and Dhavi (Odisha), Kumari (Western Ghats of Kerala)

Forests of India

Vegetation Type	Found in	Major Tree Species
Tropical Evergreen Forest	Western Ghats, Andaman and Nicobar Islands, North-East India, Parts of Odisha	Rosewood, Mahogany, Ebony, Rubber, Bamboo
Tropical Mangrove Forest	Coastal areas, Sundarbans (West Bengal), Andaman and Nicobar Islands, Gujarat coast	Sundari, Palm, Rhizophora, Avicennia, Mangroves
Tropical Deciduous Forest	Eastern Madhya Pradesh, Northern Chhattisgarh, Jharkhand, Odisha, Bihar, Parts of Uttar Pradesh	Teak, Sal, Rosewood, Mahua, Amla, Sandalwood
Tropical Dry Forest	Maharashtra, Andhra Pradesh, Karnataka, Tamil Nadu, Western Uttar Pradesh, Punjab, Haryana	Acacia, Date Palm, Neem, Khair, Palas
Desert Forest	Rajasthan, Western Punjab, Haryana	Acacia, Kikar, Thorny Shrubs
Mountain Forest	Himalayan regions (above 1000m), Western Ghats, Nilgiri Hills	Cedar, Pine, Spruce, Birch, Oak

India State of Forest Report, 2023

- **Total Forest and Tree Cover** 8,27,357 sq km, which is 25.17% of the geographical area of the country.

- Forest Cover – 7,15,343 sq km (27.76%)
- Tree Cover – 1,12,014 sq km (3.41%)

- **Increase in Total Forest and Tree Cover**
 - The total forest and tree cover has increased by 1,445 sq km in 2023 as compared to 2021.

- Forest Cover – Increased by 156 sq km.
- Tree Cover – Increased by 1,289 sq km.

- **Top States with the Highest Forest and Tree Cover** (in terms of area) Madhya Pradesh 85,724 sq km > Arunachal Pradesh 67,083 sq km > Maharashtra 65,383 sq km

- **Top States with the Maximum Forest Cover** (in terms of area) Madhya Pradesh 77,073 sq km > Arunachal Pradesh 65,882 sq km > Chhattisgarh 55,812 sq km

- **Top States Showing Maximum Increase in Forest and Tree Cover** (in sq km) Chhattisgarh 684 sq km > Uttar Pradesh 559 sq km > Odisha 559 sq km > Rajasthan 394 sq km

- **Top States Showing the Maximum Increase in Forest Cover** (in sq km)

Mizoram 242 sq km > Gujarat 180 sq km > Odisha 152 sq km

- **Increase in Forest Cover in Percentage Terms Compared to Total Geographical Area** Lakshadweep 91.33% > Mizoram 85.34% > Andaman and Nicobar Islands 81.62%

Mangrove Cover

- The total mangrove cover in the country is 4,992 sq km, with a decrease of 7.43 sq km observed in 2023 compared to 2021.
- Increase in Mangrove Cover: Andhra Pradesh and Maharashtra.
- Decrease in Mangrove Cover: Gujarat.

National Forest Policy

1988

To promote

- Afforestation and wasteland development
- Reforestation
- Encouragement of use of wood for fuel

1952

- First forest policy after independence
- Forests are classified into protected forests, national forests, village forests (Gram Van) and tree lands

Major Revolution regarding Agriculture

Revolution	Production
Black Revolution	Petroleum Production
Blue Revolution	Fish Production
Brown Revolution	Leather Production
Golden Revolution	Fruits/Honey Production
Green Revolution	Food Grains Production
Grey Revolution	Fertiliser Production
Pink Revolution	Onion Production
Red Revolution	Meat/Tomato Production
Silver Revolution	Egg/Poultry Production
White Revolution	Milk/Dairy Production
Yellow Revolution	Oil seeds Production
Evergreen Revolution	Overall agro development

Major Mineral-Producing States of India

Mineral	Top Producing States
Iron Ore	Odisha, Chhattisgarh, Karnataka
Manganese	MP, Maharashtra, Odisha
Bauxite	Odisha, Gujarat, Jharkhand
Crude Oil	Rajasthan, Gujarat, Assam
Natural Gas	Assam, Rajasthan, Tripura
Limestone	Rajasthan, MP, Chhattisgarh
Copper Ore	MP, Rajasthan, Jharkhand
Graphite	Tamil Nadu, Odisha, Jharkhand
Coal	Chhattisgarh, Odisha, MP

Major Tribes of India

Tribes	State/UT
Baiga, Bhuiya, Muria	Madhya Pradesh
Bakkarwal	Jammu and Kashmir
Chenchu	Andhra Pradesh
Angami, Konyak	Nagaland
Apatani	Arunachal Pradesh
Gaddi	Himachal Pradesh
Badaga, Irula	Tamil Nadu
Jarawa	Andaman & Nicobar
Tharu	Uttarakhand
Kurumba	Tamil Nadu
Lepcha	Sikkim
Mikir	Assam
Moplah	Kerala
Toda	Nilgiri Hills (Tamil Nadu)
Santhal	Jharkhand, West Bengal
Gond	MP, Jharkhand, Odisha

Transportation in India

Road Transport

- India's road network is second largest in the world (total length - 66.71 lakh km).
- Shortest national highway - **NH-548** and **NH-118** (5 km each).
- The longest national highway number in the country is **NH-44**, with a length of **4112 km**, connecting Srinagar (Jammu and Kashmir) to **Kanyakumari** (Tamil Nadu).
- NH-27** is the second-longest national highway in the country (3507 km).

Major National Highways

NH	Length (km)	Where to Where
NH-27	3,507	Porbandar to Silchar
NH-48	2,807	Delhi to Chennai
NH-52	2,317	Sangrur to Ankola
NH-30	2,040	Sitarganj to Ibrahimpattam
NH-6	1,873	Sealdah to Jorhat
NH-53	1,781	Hazira to Paradip
NH-16	1,711	Kolkata to Chennai
NH-66	1,622	Panvel to Kanyakumari
NH-19	1,435	Delhi to Kolkata

- Golden Quadrilateral** connects four metropolitan cities Delhi, Mumbai, Chennai and Kolkata, its total length is 5846 km.
- The North-South Corridor** connects Srinagar to Kanyakumari and the East-West Corridor connects Silchar to Porbandar, whose total length will be 7300 km.
- The world's longest tunnel (at maximum height) **Atal Tunnel** was inaugurated. Its length is 9.02 km. It connects Manali and Lahaul-Spiti.
- India's longest sea bridge, **Atal Setu (Mumbai) Trans-Harbour Link**, is 21.8 km long.

States with the longest length of NH

Maharashtra (13.06%), UP (8.73%), Rajasthan (7.38%), MP (6.42%).

Rail Transport

- Indian Railways is the **second-largest** railway system in Asia and the **third-largest** in the world.
- Types of Railway Lines** – Broad Gauge, Meter Gauge, Narrow Gauge

Facts about Indian Railway

- First train – 1853 (Bombay to Thane)
- Indian Railway Board established – 1905
- India's first electric train – 1925 (Bombay and Kurla).
- Nationalisation of Railways – 1950
- Metro rail was launched in Kolkata in 1984.
- Longest distance covered by a train in India – Vivek Express (route length of 4272 km).
- Fastest train – Vande Bharat (180 km/h)
- First Namo Bharat Rapid Rail (Metro service) – Between Ahmedabad and Bhuj.
- The **Konkan Railway** project, connecting Maharashtra, Goa and Karnataka was started in 1990, covering a distance of 760 km between Roha and Mangalore.

Railway Zones of India

Railway Zones	Headquarters
Central Railway	Mumbai
Konkan Railway	Navi Mumbai
Metro Railway	Kolkata
Northern Railway	Delhi
North Central Railway	Prayagraj
North Eastern Railway	Gorakhpur
North-East Frontier Railway	Maligaon, Guwahati
North Western Railway	Jaipur
Eastern Railway	Kolkata
East Central Railway	Hajipur
East Coast Railway	Bhubaneswar
Southern Railway	Chennai Central
South Central Railway	Secunderabad Junction
South Coast Railway	Visakhapatnam
South Eastern Railway	Garden Reach, Kolkata
South East Central Railway	Bilaspur
South Western Railway	Hubballi (Hubli)
Western Railway	Mumbai
West Central Railway	Jabalpur

Water Transport

- Central Inland Waterways Authority was established in the year 1986
- Headquarters – Kolkata

National Waterways

Waterway Length (km) From

NW-1	1620	Prayagraj (UP)- Haldia (West Bengal)
NW-2	891	Sadiya - Dhubri (Assam)
NW-3	205	Kollam - Kottapuram (Kerala)
NW-4	1095	Vijayawada - Muktyala (Andhra Pradesh)
NW-5	623	Talcher - Dhamra (Odisha)
NW-6	121	Lakhipur- Bhanga (Assam) (proposed)

Major Ports of India

Port Name	Sea/River	State
Deendayal Upadhyay Port (Kandla)	Arabian Sea	Gujarat
Mumbai Port	Arabian Sea	Maharashtra
Jawaharlal Nehru Port	Arabian Sea	Maharashtra
Mormugao Port	Arabian Sea	Goa
New Mangalore Port	Arabian Sea	Karnataka
Kochi Port	Arabian Sea	Kerala
Tuticorin (New Tuticorin)	Bay of Bengal	Tamil Nadu
Chennai Port	Bay of Bengal	Tamil Nadu
Ennore Port	Bay of Bengal	Tamil Nadu
Visakhapatnam Port	Bay of Bengal	Andhra Pradesh
Paradip Port	Bay of Bengal	Odisha
Kolkata Port (Dr. Syama Prasad Mukherjee Port)	Hooghly River	West Bengal
Galathea Bay Port	Bay of Bengal	Andaman and Nicobar Islands

Air Transport

- In the year 1911, the first air postal service was started between **Allahabad** (present Prayagraj) and **Naini** in India.
- The first international air service in India was started in the year 1922 between **Karachi** and **Madras** (now Chennai).
- Air India** mainly provides services on international level and Indian Airlines operates flights to the neighbouring countries like South-East Asian countries and Central Asian countries.
- Pawan Hans Helicopters Limited** is known for reliable helicopter operations in India.
- The first field airport built in the North-East region of India is Pakyong Airport, which is the first airport in Sikkim.

UDAN Yojana

Full name Ude Desh Ka
Aam Nagrik

Declaration 21st October,
2016 (New Delhi)

Launched on 27th April, 2017



International Airports in India

Airport Name	Location
Indira Gandhi International Airport	New Delhi
Chhatrapati Shivaji Maharaj International Airport	Mumbai
Kempegowda International Airport	Bengaluru
Netaji Subhas Chandra Bose International Airport	Kolkata
Cochin International Airport	Kochi
Sardar Vallabhbhai Patel International Airport	Ahmedabad
Pune International Airport	Pune
Trivandrum International Airport	Thiruvananthapuram
Jaipur International Airport	Jaipur
Chaudary Charan Singh International Airport	Lucknow
Surat International Airport	Surat
Bagdogra International Airport	Siliguri
Madurai International Airport	Madurai
Biju Patnaik International Airport	Bhubaneswar

Communication

Communication Service	Related Facts
Country with the most post offices in the world	India (1.5 lakh)
Public postal service started	1837
First telegraph service in India started between Kolkata and Diamond Harbour	1851
Establishment of the present postal department	October, 1854
The country's largest retail savings bank	Post Office Savings Bank
Official arrival of Internet in India	15th August, 1995
Establishment of Telecom Regulatory Authority of India (TRAI)	20th February, 1997

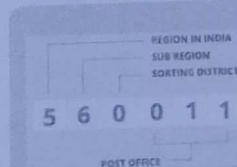
Communication Service	Related Facts
The company that started the internet in India	Videsh Sanchar Nigam Limited
Establishment of Bharat Sanchar Nigam Limited (BSNL)	1st October, 2000
National e-Governance Plan approved	18th May, 2006



The first postage stamp in India was printed
1854 by Lord Dalhousie

Mobile number portability introduced in India

20 January, 2011



Introduction of PIN code system in India
1972

Environment and Ecology

Environment

- Originated from French word **environ**, which means 'surrounding'.
- Combination of organic and inorganic components.

Ecology

- Study of the life process of living organisms and the environment in which they live and interact.
- The term ecology was first used by **Ernest Haeckel** in 1869.

Ecosystem

- It is an ecological system in which plants and animals are connected to their environment through a nutrient chain.
- There are **three components** of an ecosystem – biotic, abiotic and energy components.
- The term ecosystem was first used by **A. Tansley** in 1935.

Food Chain

- Transfer of energy from lower to higher trophic levels, energy passes through producers, consumers and decomposers.
- Producer → Primary consumer → Secondary consumer → Tertiary consumer → Higher carnivorous
- **Food web** A network of interconnected food chains in an ecosystem.

Pattern of Food Chain

Level	Ocean Biome	Grassland Biome	Pond Biome
Primary Producer	Phytoplankton ↓	Grass ↓	Algae ↓
Primary Consumer	Zooplankton ↓	Grasshopper ↓	Mosquito Larvae ↓
Secondary Consumer	Fish ↓	Rat ↓	Dragonfly Larvae ↓
Tertiary Consumer	Seal ↓	Snake ↓	Fish ↓
Quaternary Consumer	White Heron ↓	Hawk ↓	Raccoon ↓

Ecological Pyramids

- It is a pictorial representation of the relationship between the number of primary producers and consumers biomass and stored energy.
- Proposed by **Charles Elton** in 1927.

Environmental Pollution

- The degradation of environmental quality at the local level due to human causes is called environmental pollution.
- It includes air pollution, water pollution, noise pollution, soil pollution, marine pollution, etc.

Air Pollution

It is undesirable change in the fixed quantity and proportion of gases in the atmosphere.

Classification of Air Pollutants

- **Primary** They are released for the long term after a long-process, such as CO₂, CO, CFC, ozone, methane, etc.
- **Secondary** They are produced by the reaction of two or more pollutants; Such as smoke smog (produced by oxyacetyl nitrate and nitrogen oxide on ozone).

Water Pollution

Presence of any type of undesirable gaseous, liquid or solid substances in water.

Sources of Water Pollution

- **Point source** Sewage site of municipal area and effluent site of factories
- **Non-point source** Agricultural waste, industrial waste, domestic waste

Acid Rain

- Sulphur dioxide (SO₂) and nitrogen oxide (NOx) combine with atmospheric water form sulfuric acid, nitrous oxide and nitric acid.
- When this acid reaches the surface with rainwater, it is called acid rain. This phenomenon was first explained by **Robert Eggers Smith**.

Noise Pollution

- Sound intensity of more than **85 decibels** is the measure of this type of pollution.
- Noise pollution causes diseases like loss of hearing, high blood pressure, migraine, high cholesterol level, stomach ulcer, irritability, insomnia, etc.

Climate Change

Process of changes in the global weather pattern. It causes permanent change in the statistical distribution of weather.

Global Warming

- Due to increasing environmental pollution at the global level, an increase in the temperature of the Earth and the atmosphere has been recorded.
- This increase in global temperature is called global warming.

Greenhouse Gas

These gases contribute to global warming by trapping heat and raising surface temperature. e.g., CO₂, NO, CH₄, CFCs, etc.

Biodiversity

The diversity and richness of the species of animals and plants found in any particular natural area is called the biodiversity of that particular place. **EO Wilson** is called the 'Father of Biodiversity'.

Efforts for Biodiversity Conservation

- **In-situ conservation** It is conservation of animals and plants in their natural habitat. e.g., Biosphere reserve, National park, Sanctuary.
- **Ex-situ conservation** It is conservation of animals and plants outside their natural habitat. e.g., Biological Park, Seed bank and Gene bank.

Ramsar Treaty

- It was done in 1971 for the conservation of wetlands in the world.
- India joined this treaty on 1st February, 1982.
- India has **85 Ramsar sites** (January, 2025).
- India's first Ramsar site is **Chilika Lake**, Odisha.

Hotspot

- The term hotspot was first used by British **Norman Myers** in the year 1988.
- Biodiversity is not distributed uniformly on the Earth. There are some places in the world where there is a wide range of biodiversity. These areas are known as **mega zones**.
- Countless number of species are found here hence this is called hotspot.
- The four major hotspots of India are the Himalayan region, Western Ghats, Sundaland and India-Myanmar region.

Tiger Project

- The Tiger Project was started in the year 1973 with the help of **World Wildlife Fund**.
- India's first national tiger reserve is **Jim Corbett National Park**.
- The total number of national tiger reserves in India is 57 (January, 2025).
- Madhya Pradesh is known as 'Tiger State of India'.

Endangered Species

- Those species are called endangered species, whose **70% members** have been lost in the last 10 years or there has been a 70% decline in the members of 3 generations of that species.
- These species are very likely to become extinct in the near future, due to factors such as habitat loss, poaching, invasive species and climate change.

Category of Endangered Species

Category	Description
Species of Least Concern (LC)	Prevalent in wild areas
Near Threatened Species (NT)	High rate of decline of members of species
Endangered Species (EN)	70% decline in 10 years and three generations
Critically Endangered Species (CR)	90% decline in 10 years
Extinct (EX)	Not seen in natural habitat for 50 years
Extinct from Forest (EW)	Completely vanished from the Earth

National Parks/Sanctuaries

National Park/ Sanctuary	State / Region	Rare Species Found
Manas	Barpeta (Assam)	Rhinoceros, wild Buffalo, gaur, dwarf pig, golden langur, civet cat, bear, crocodile, python, big squirrel
Kaziranga	Jorhat (Assam)	Habitat of one-horned Indian rhinoceros
Keibul-Lamjao	Manipur (Floating National Park)	Dancing deer, water birds
Gir	Gujarat	Asiatic lion
Maru	Jaisalmer and Barmer (Rajasthan)	Elephant, black buck, chinkara
Kanchenjunga	Sikkim	Red panda, snow leopard, clouded leopard, Thar musk deer, narwhal, takin, goral, serow, wild ass
Simlipal	Mayurbhanj (Odisha)	Tiger, gaur, spotted cat, leopard, mouse deer, flying squirrel, crocodile
Bhitarkanika	Baleshwar (Odisha)	Saltwater crocodile, monitor lizards, leopard, fishing cat, water birds, Ridley sea turtle
Dachigam	Srinagar (J&K)	Leopard, brown bear, serow, musk deer, hangul
Dudhwa	Lakhimpur Kheri (Uttar Pradesh)	Honey bear, sambar, swamp deer, spotted cat, jungle fowl, partridge
Keoladeo Ghana	Bharatpur (Rajasthan)	Siberian crane, pelican, hornbill, dardimukh quail, Indian porcupine, heron, sambhar, cheetal, black buck, civet cat
Pin Valley	Himachal Pradesh	Snow leopard, snow wolf, wild goat, brown fox, ibex, small marmot
Jim Corbett	Nainital (Uttarakhand)	Panda, tiger, elephant
Kuno	Madhya Pradesh	Indian leopard, sloth bear, nilgai, chinkara

Biosphere Reserve

It is a special type of terrestrial and coastal ecosystem, whose objective is the conservation of culture, animals and plants. In the year 1975, UNESCO started the Man and Biosphere Programme (MAB), under which twelve biosphere reserves (*) are recognised.

1 Nilgiri * (2000)
Tamil Nadu, Kerala

2 Nanda Devi * (2004)
Uttarakhand

3 Nokrek * (2009)
Meghalaya

4 Sundarbans * (2001)
West Bengal

5 Gulf of Mannar * (2001)
Tamil Nadu

6 Great Nicobar * (2001)
Andaman & Nicobar

7 Simlipal * (2013)
Odisha

8 Pachmarhi * (2009)
Madhya Pradesh

9 Achanakmar * (2012)
MP, Chhattisgarh

10 Panna * (2020)
Madhya Pradesh

11 Agasthyamalai * (2016)
Tamil Nadu

12 Khangchendzonga *
(2018) Sikkim

13 Manas
Assam

14 Dehang Dewang
Arunachal Pradesh

15 Cold Desert
Himachal Pradesh

16 Seshachalam
Andhra Pradesh

17 Great Rann of Kutch
Gujarat

18 Dibru-Saikhowa
Assam

Wildlife Conservation Projects (India)

Project	Year
Hangul Project	1970
Gir Lion Project	1972
Tiger Project	1973
Olive Ridley Turtle Project	1975
Gharial Breeding Project	1975
Manipur Thamin Project	1977
Rhino Project	1987
Elephant Project	1992
Red Panda Project	1994
Sea Turtle Project	1999
Vulture Project	2006
Snow Leopard Project	2009
Great Indian Bustard Project	2014

Acts Related to Biodiversity in India

- Wildlife Protection Act, 1972
- Environment (Protection) Act, 1986
- Biodiversity Act, 2002 (Constitution of National Biodiversity Authority)
- Compensatory Afforestation Fund Act, 2016

Convention on Biological Diversity

Conference	Year
World Heritage Convention	1972
Convention on Biological Diversity	1992
Cartagena Protocol	2000
Nagoya Protocol	2010

Important Agreements/Conferences Related to Environment

Conference	Year
Stockholm Agreement	1972
Helsinki Conference	1975
London Conference	1975
Brundtland Commission Report	1987
Montreal Agreement	1987
Earth Summit (Rio de Janeiro Conference)	1992
Johannesburg Conference	2002
Bali Conference	2007
Rio + 20 Conference	2012
Warsaw Conference (COP-19)	2013 (November)
Lima Conference (COP-20)	2014 (December)
Paris Conference (COP-21)	2015 (December)
Maracas Conference (COP-22)	2016 (November)
Bonn Conference (COP-23)	2017
Katowice (Poland) Conference (COP-24)	2018 (December)
Madrid (Spain) Conference (COP-25)	2019 (December)
COP-26 (Glasgow, Scotland)	2021
COP-27 (Egypt)	2022
COP-28 (UAE)	2023
COP-29 (Azerbaijan)	2024
COP-30 (Brazil)	2025

Major Environmental/Human Rights Organisations

→ **Red Cross**
Geneva
1863



→ **Amnesty International**
London
1961



→ **World Wide Fund for Nature**
Gland, (Switzerland)
1961



→ **Green Peace**
Amsterdam
1971



→ **Human Rights Watch**
New York
1978





INDIAN POLITY

Making of Constitution

Constituent Assembly

- Formed on the recommendation of – Cabinet Mission Plan (1946)
- First meeting- 9th December, 1946
- First President
 - Dr. Sacchidananda Sinha (Temporary)
 - Dr. Rajendra Prasad (Permanent)
- Vice-Presidents – HC Mookerjee and VT Krishnamachari
- Constitutional Advisor – BN Rau
- Total Sessions- 11
- Constitution of Drafting committee – 29 August, 1947
- Total members of Drafting committee – 7
- Last Session - 24th January, 1950

Committees of Constituent Assembly

Committees	Chairman
Union Powers Committee	Jawaharlal Nehru
Union Constitution Committee	Jawaharlal Nehru
States Committee	Jawaharlal Nehru
Provincial Constitution Committee	Sardar Vallabhbhai Patel
Drafting Committee	Dr. BR Ambedkar
Steering Committee	Dr. Rajendra Prasad
Flag Committee	Dr. Rajendra Prasad

Constitution at a Glance

- Total time taken to make the Constitution – **2 Years, 11 Months and 18 Days.**
- Date of adoption of Constitution – **26th November, 1949**
- Total Parts in Original Constitution – **22**
- Total Articles in Original Constitution – **395**
- Total Schedules in Original Constitution (At present, there are 12 Schedules Indian Constitution)

Interim Government, 1946

Members	Portfolio Held
Jawaharlal Nehru	External Affairs & Commonwealth Relations
Sardar Vallabhbhai Patel	Home, Information & Broadcasting
Dr. Rajendra Prasad	Food & Agriculture
Dr. John Mathai	Industries & Supplies
Jagjivan Ram	Labour
Sardar Baldev Singh	Defence
C.H. Bhabha	Works, Mines & Power
Liaquat Ali Khan	Finance
Abdur Rab Nishtar	Posts & Air
Asaf Ali	Railways & Transport
C. Rajagopalachari	Education & Arts
Ismail Chundrigar	Commerce
Ghaznafar Ali Khan	Health
Joginder Nath Mandal	Law

Preamble

- Taken from USA.
- Introduced as Objective Resolution proposed by Jawaharlal Nehru in Constituent Assembly on 13th December, 1946, which later unanimously adopted on 22nd January, 1947.
- Amended by the 42nd Constitutional Amendment Act, 1976 which added three new words – Socialist, Secular and Integrity.

Objective of Preamble

Source of the Constitution – People of India

Nature of the Indian State – Sovereign, Socialist, Secular, Democratic, Republican.

Objective of the Constitution - Justice, Liberty, Equality and Fraternity

Date of adoption of the Constitution - 26th November, 1949.

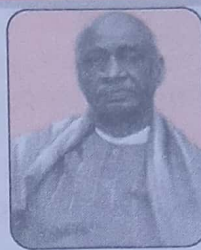
First Cabinet of Independent India, 1947



Jawaharlal Nehru
(External Affairs & Commonwealth)



Dr. Rajendra Prasad
(Food & Agriculture)



Sardar Vallabhbhai Patel
(Home, Information & Broadcasting)

Dr. B.R. Ambedkar
(Law)

Jagjivan Ram
(Labour)

Dr. John Mathai
(Railways & Transport)

Rafi Ahmed Kidwai
(Communication)

V.N. Gadgil
(Works, Mines & Power)

Maulana Abul Kalam Azad
(Education)

C.H. Bhabha
(Commerce)

Sardar Baldev Singh
(Defence)

Raj Kumari Amrit Kaur (Health)

R.K. Shanmukham Chetty
(Finance)

Dr. Shyama Prasad Mukherji
(Industries & Supplies)

KC Neogy
(Relief and Rehabilitation)

Parts and Articles

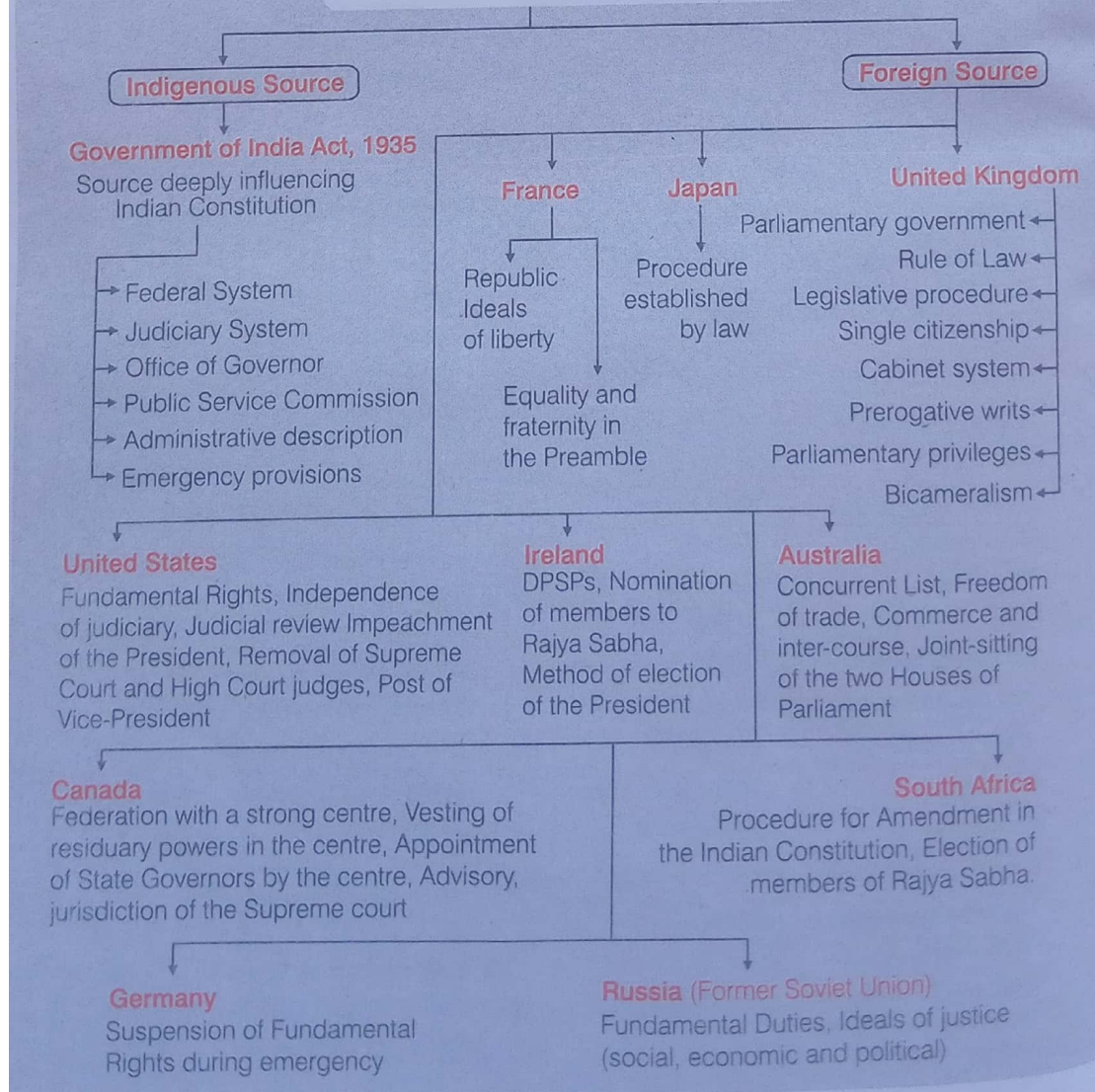
Part	Subject	Articles
1	The Union and its Territory	1 to 4
2	Citizenship	5 to 11
3	Fundamental Rights	12 to 35
4	Directive Principles of State Policy	36 to 51
4-A	Fundamental Duties	51A
5	The Union	52 to 151
6	The States	152 to 237
7	States in the B-Part of the First Schedule	238
<i>Repealed by the 7th Constitutional Amendment, 1956</i>		
8	Union Territories	239 to 242
9	Panchayats	243 to 243O
9-A	Municipalities	243P to 243ZG
9-B	Co-operative Societies	243ZH to 243ZT
10	The Scheduled and Tribal Areas	244
11	Relations Between the Union and the States	245 to 263

Part	Subject	Articles
12	Finance, Property, Contracts and Suits	264 to 300A
13	Trade, Commerce and Intercourse within India	301 to 307
14	Services under the Union and the States	308 to 323
14-A	Tribunals	323A to 323B
15	Elections	324 to 329
16	Special Provisions Relating to Certain Classes	330 to 342
17	Official Language	343 to 351
18	Emergency Provisions	352 to 360
19	Miscellaneous	361 to 367
20	Amendment of the Constitution	368
21	Temporary, Transitional and Special Provisions	369 to 392
22	Short Title, Commencement, Authoritative Text in Hindi and Repeals	393 to 395

Schedules of The Constitution

Schedule	Description
First	Names and territorial jurisdiction of States and Union Territories.
Second	Provisions concerning the emoluments, allowances and privileges of high-ranking constitutional officeholders
Third	Forms of Oaths or Affirmations
Fourth	Allocation of seats in the Rajya Sabha for States and Union Territories.
Fifth	Administration and control of Scheduled Areas and Scheduled Tribes.
Six	Administration of tribal areas in Assam, Meghalaya, Tripura and Mizoram.
Seven	Division of powers between the Union and the States into Union, State and Concurrent List.
Eight	Official languages (22)
Nine	Validation for Certain Acts. Added by the 1st Constituent Amendment Act, 1951.
Ten	Provisions for disqualification of MPs and MLAs on the grounds of defection, known as the Anti-defection Law. Added by the 52nd Constitutional Amendment Act, 1985.
Eleven	Powers, authority and responsibilities of Panchayats, containing 29 matters.
Twelve	Powers, authority and responsibilities of Municipalities, containing 18 matters.

Sources of Indian Constitution



Union and Its Territories

- Part-I of the Constitution deals with the Union and its territory under Articles 1 to 4.
- **Article 1** - India as a 'Union of States' rather than a 'Federation of States'.
- **Article 3** - Parliament to form new States and alter the areas, boundaries or names of existing states.

Reorganisation of States

- The Indian Independence Act (1947) allowed princely states to join India, join Pakistan or remain independent.
- On the recommendation of **Fazal Ali Commission** (1956) States Reorganisation Act (1956) and the 7th Constitutional Amendment Act (1956) was passed.
- It led to the creation of 14 states and 6 union territories on 1st November, 1956.
- **Andhra Pradesh** was the first state created on linguistic basis.
- Other Committees related to Reorganisation of States- Dhar Commission (1948), JVP Committee (1948).
- **JVP** - Jawaharlal Nehru, Vallabhbhai Patel, Pattabhi Sitaramayya.

Reorganisation of States/UTs

States/UT	Foundation Day
Jammu & Kashmir	26th January, 1957
Maharashtra and Gujarat	1st May, 1960
Nagaland	1st December, 1963
Haryana	1st November, 1966
Himachal Pradesh	25th January, 1971
Meghalaya, Manipur, Tripura	21st January, 1972
Sikkim	26th April, 1975
Mizoram and Arunachal Pradesh	20th February, 1987
Goa	30th May, 1987
Chhattisgarh	1st November, 2000
Uttarakhand	9th November, 2000
Jharkhand	15th November, 2000
Telangana	2nd June, 2014
Merger of Dadra & Nagar Haveli and Daman & Diu	26th January, 2020

The Jammu and Kashmir Reorganisation Bill, 2019

- The Jammu and Kashmir Reorganisation Act, 2019 was passed by the Indian Parliament on 5th August, 2019 which repealed Article 370 of the Constitution of India.
- It divided the state of Jammu and Kashmir into two Union Territories: Jammu and Kashmir and Ladakh.

Citizenship

- In India, there is provision of Single Citizenship (Article 5 to 11).
- The Citizenship Act of 1955 prescribes five ways to acquire citizenship
 - By Birth
 - By Descent
 - By Registration
 - By Naturalisation
 - By Incorporation
- Modes of Losing Citizenships:
 - Renunciation
 - Termination
 - Deprivation

Citizenship (Amendment) Act, 2019 (CAA)

- It was passed by Parliament on **11th December, 2019**.
- The Act provides Indian citizenship to Hindus, Sikhs, Buddhists, Jains, Parsis and Christians from Pakistan, Bangladesh and Afghanistan who entered India on or before 31st December, 2014.

Fundamental Rights

- Fundamental Rights (Articles 12 to 35) are the set of rights that protect the liberties of individuals and groups.
- The resolution on Fundamental Rights was adopted by the Congress at its **Karachi Session** (1931). The draft of Fundamental Rights is prepared by **Jawaharlal Nehru**.
- Originally, they are seven in number; **Right to Property** was deleted by 44th Constitutional Amendment Act, 1978.

1. Right to Equality

- Guarantees equality before the law and equal protection of the laws within the Territory of India. (Article 14)
- Prohibits discrimination on grounds of religion, race, caste, sex or place of birth. (Article 15)
- Provides for equality of opportunity in matters of public employment and prohibits discrimination. (Article 16)
- Abolishes untouchability. (Article 17)
- Abolishes titles except military and academic distinctions. (Article 18)

2. Right to Freedom

- Freedom to move freely throughout the Territory of India (Article 19)
- Protection in Respect of Conviction for Offences (Article 20)
- Protection of Life and Personal Liberty (Article 21)
- Protection for Arrest & Detention (Art. 22)

Article 21 A – Right to Education

- Added by the 86th Constitutional Amendment Act, 2002.
- It ensures that the State provides free and compulsory education to children aged 6 to 14 years.

3. Right against Exploitation

- Prohibition of human trafficking and forced labour. (Article 23)
- Prohibits employment of children below 14 years of age in factories, mines or any other hazardous occupations. (Art. 24)

4. Right to Freedom of Religion

- Freedom of conscience and free profession, practice and propagation of religion. (Article 25)
- Freedom to manage religious affairs. (Article 26)
- Freedom from taxation for promotion of a religion. (Article 27)
- Freedom from attending religious instruction. (Article 28)

5. Cultural and Educational Rights

- Protection of interests of minorities. (Article 29)
- Right of minorities to establish and administer educational institutions. (Article 30)

6. Right to Constitutional Remedies

It guarantees the right to move the Supreme Court for the enforcement of Fundamental Rights. (Article 32)

Dr. BR Ambedkar referred Article 32 as the **Heart and Soul** of the Constitution.

Five types of Writs issued by higher court to the lower court

- **Habeas Corpus** 'You may have the body' – Issued to release a person who is unlawfully detained.
- **Mandamus** 'We command' – Directs a public official or authority to perform a duty they are legally bound to do.
- **Prohibition** 'To forbid' – Issued by a higher court to a lower court or tribunal, preventing it from exceeding its jurisdiction.
- **Certiorari** 'To be certified' – Issued by a higher court to quash an order of a lower court or transfer a case.
- **Quo Warranto** 'By what authority' – Issued to question the legality of a person holding a public office.

Landmark Cases Related to Fundamental Rights

- **Shankari Prasad vs Union of India** (1951) – Parliament was very broad and could be used to alter any part of the Constitution, including fundamental rights.
- **Golaknath v. State of Punjab** (1967) – The Supreme Court ruled that Parliament could not abridge fundamental rights or amend them to implement DPSPs.
- **Kesavananda Bharati** (1973) – The Supreme Court overruled the Golaknath case and restored Parliament's power to amend the Constitution, including fundamental rights.

Directive Principles of State Policy

Part IV of the Constitution (Articles 36 to 51) enumerates the Directive Principles of State Policy. Taken from Irish Constitution. Described by Dr. B.R. Ambedkar as 'novel features' of the Indian Constitution.

- ↳ **Article 36** Definition of State
- ↳ **Article 37** DPSPs are not enforceable by law but must guide the State in making laws and policies.
- ↳ **Article 38** Promotion of Welfare of the People
- ↳ **Article 39** Directs the State to ensure adequate means of livelihood, equal pay for equal work, and the protection of children and youth from exploitation.
- ↳ **Article 39 (A)** Equal Justice and Free Legal Aid
- ↳ **Article 40** Organisation of Village Panchayats.
- ↳ **Article 41** Right to Work, Education and Public Assistance
- ↳ **Article 42** Provision for Just and Humane Conditions of Work
- ↳ **Article 43** The State shall try to secure a living wage and decent standard of living for workers.
- ↳ **Article 43 (A)** Participation of Workers in Management of Industries
- ↳ **Article 44** Uniform Civil Code
- ↳ **Article 45** The State shall provide free and compulsory education for children until they complete the age of 14.
- ↳ **Article 46** Promotion of the Educational and Economic Interests of Scheduled Castes, Scheduled Tribes, and Other Backward Classes
- ↳ **Article 47** Duty of the State to Raise the Level of Nutrition and Standard of Living.
- ↳ **Article 48** Organization of Agriculture and Animal Husbandry
- ↳ **Article 48 (A)** Protection and Improvement of Environment.
- ↳ **Article 49** Protection of Monuments and Places and Objects of National Importance
- ↳ **Article 50** Separation of Judiciary from Executive
- ↳ **Article 51** Promotion of International Peace and Security

Fundamental Duties

Inscribed in Part IVA to the Constitution, consisting of Article 51A which listed 10 Fundamental Duties. Taken from USSR. Inserted by the 42nd Amendment Act, 1976; On the recommendations of Swarna Singh Committee.

1 To abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem.

2 To cherish and follow the noble ideals that inspired the national struggle for freedom.

3 To uphold and protect the sovereignty, unity and integrity of India.

4 To defend the country and render national service when called upon to do so.

5 To promote harmony and the spirit of common brotherhood amongst all the people of India and to renounce practices derogatory to the dignity of women.

6 To value and preserve the rich heritage of the country's composite culture.

7 To protect and improve the natural environment and to have compassion for living creatures.

8 To develop scientific temper, humanism and the spirit of inquiry and reform.

9 To safeguard public property and to abjure violence.

10 To strive towards excellence in all spheres of individual and collective activity.

11 To provide opportunities for education to his child or ward between the age of six and fourteen years.

Union Executive (Art. 52-151)

President

- Under **Article 52**, there shall be the President of India.
- He is the first citizen of the country and acts as the symbol of unity, integrity and solidarity of the nation.
- **Article 53** states that the President of India has the executive power.

Qualification

- Should be a Citizen of India.
- Must have completed 35 years of age.
- Must be eligible for election as a member of the Lok Sabha.
- Does not hold any office of profit at the time of Election.

Presidential Election

- The President is elected indirectly by an electoral college.
- It comprises elected members of both Houses of Parliament, Legislative Assemblies of States and Legislative Assemblies of the Union Territories of Delhi and Puducherry.
- Election is done by the secret ballot according to the system of proportional representation by means of the single transferable vote.

- Dr. Rajendra Prasad took over as the first President of India on 24th January, 1950.

Functions and Powers

Executive Powers

- Appoints the Prime Minister, Cabinet Ministers, Governors, judges of the Supreme Court and High Courts and other key officials.

Legislative Powers

- Can summon or prorogue the sessions of Parliament and dissolve the Lok Sabha.
- Can issue ordinances when Parliament is not in session. (Article 123)
- Nominates members to the Rajya Sabha.

Judicial Powers

- Appoints judges to the Supreme Court and High Courts.
- Can grant pardons. (Article 72)

Diplomatic Powers

- Represents India in international forums, makes treaties.
- Receives foreign diplomats and ambassadors.

Military Powers

- Commander-in-Chief of the defence forces of India. Decides on war or peace.

Emergency Powers

- Can declare a national emergency if the security of India or any part is threatened by war, external aggression or Armed Rebellion. (Article 352)
- Can dissolve the State Government and assume direct control in case of failure of constitutional machinery. (Article 356)
- Can declare a financial emergency if the financial stability or credit of India or any part is threatened. (Article 360)

Declaration of National Emergency

- **1962** During India-China War
- **1971** During India-Pakistan War
- **1975** On Ground of Internal Disturbance.

Veto Powers of President

Absolute Veto

The President withholds assent to a bill, effectively rejecting it.

Suspensive Veto

The President withholds assent to a bill, returns it to Parliament for reconsideration. If passed again by Parliament, the President must give assent.

Pocket Veto

In this case, the President neither ratifies nor rejects nor returns the bill. He simply keeps the bill pending for the indefinite period. Zail Singh was the first President of India to use a pocket veto in 1986

Tenure and Vacancy

- President holds the office for 5 years.
- Resign any time by addressing the Resignation letter to Vice-President.
- Remove from the office by Impeachment (**Article 61**) on the ground of 'Violation of Constitution'.

Vice-President

- **Article 63** provides that there shall be a Vice-President of India.
- He occupies the **second** highest office in the country.
- He is elected by an electoral college consist of both elected and nominated members of the Lok Sabha and the Rajya Sabha.
- Qualification for the election of Vice-President is almost same as President. Apart from this, he must fulfil the eligibility to be elected as a member of the Rajya Sabha.
- The Vice-President is the **ex-officio** Chairman of the Rajya Sabha. (**Article-64**)
- Under **Article 65**, the Vice-President has been given the responsibility to perform the functions of the President in his absence.
- **Dr. S. Radhakrishnan** was the first Vice-President of India.

Prime Minister and Council of Ministers

- According to **Article 74** of the Constitution, there is a Council of Ministers to assist and advice the President in his functions headed by Prime Minister.
- **Article 75** states that the Prime Minister shall be appointed by the President and other minister on the advice of Prime Ministers.
- **Article 75(3)** of the Constitution of India states that Council of Ministers is collectively responsible to the House of the People or Lok Sabha.

- President dissolves the Lok Sabha on the advice of Prime Minister.
- According to **Article 78** the Prime Minister must provide information to the President on request.

Facts Related to Prime Ministers

- First no-confidence motion was brought in the Lok Sabha against **JL Nehru**.
- **Chaudhary Charan Singh** never attended the Lok Sabha.
- **Atal Bihari Vajpayee** served for the shortest period (only 13 days).
- **Gulzarilal Nanda** became the acting Prime Minister of India twice (in 1964 and 1966)

Legislature

Parliament (Article 79)

- **Indian Parliament** consists of President, Rajya Sabha and Lok Sabha.
- **Rajya Sabha** is also called Upper House whereas **Lok Sabha** is called Lower House or House of People. Hindi names were adopted in year 1954.
- Rajya Sabha represents the states and Union Territories while Lok Sabha represents the people of India as a whole.
- Maximum gap between two sessions of Parliament cannot be more than **6 months**.
- In case of any disagreement, there is a provision of Joint Sitting mention in **Article 108**.

Rajya Sabha

- **Article 80** of the Indian Constitution establishes the composition of the Rajya Sabha.
- Maximum strength of Rajya Sabha is **250**.
- At present, it has **245 members**. Of these, **225 members** represent the states, 8 members represents the Union Territories and **12 members** are nominated by the President.

- **Uttar Pradesh** has highest number of seats in Rajya Sabha. (31)
- **Maharashtra** has second highest number of seats in Rajya Sabha. (19)

- Members of Rajya Sabha are elected for a term of **6 years**.
- Rajya Sabha is a permanent house, but **two-thirds** of its members retire every two years.
- Member of Rajya Sabha should be a citizen of India, must not be less than **30 years** of age and do not hold any office of profit.
- 84th Constitutional Amendment Act, 2001 fixed the seats of Lok Sabha and Assembly till 2026.

- **Uttar Pradesh** has the highest number of seats in Lok Sabha (80) followed by Maharashtra (48).
- Earlier, 2 seats were reserved for Anglo-Indians in Lok Sabha, but 104th Constitutional Act, 2019 discontinued this provision.

Power and Functions

- Authorise Parliament to legislate on State List subjects (Article 249).
- Authorise Parliament to create new All-India Services (Article 312).
- The Rajya Sabha plays an equal role with the Lok Sabha in amending the Constitution.
- Rajya Sabha cannot amend or reject Money Bills, must return within 14 days.

Lok Sabha

- The maximum strength of Lok Sabha is fixed at **550** (530 from states, 20 from UTs).
- At present, it has **543** members (524 from states, 19 from UTs).
- Tenure of Lok Sabha is of **5 years**.
- Member of Lok Sabha should be a citizen of India, must not be less than **25 years** of age and do not hold any office of profit.

Power and Functions

- **Money Bills** can only be introduced in the Lok Sabha. (Article 110)
- The Annual Financial Statement (Article-112), Appropriation Bill (Article 114), and Finance Bills (Article 117) are introduced and passed in the Lok Sabha.
- Council of Minister is only responsible to Lok Sabha. (Article 75)
- A no-confidence motion can be introduced in the Lok Sabha.

Speaker of Lok Sabha

- **Article 93** of the Constitution of India states that the Lok Sabha shall elect a Speaker and a Deputy Speaker.
- GV Mavalankar was the first Speaker of the Lok Sabha (1952-1956).
- Meira Kumar is the first woman speaker of the Lok Sabha (2009-2013).

Parliamentary Committees

Committee	Members	Description
Public Accounts Committee (1921)	22 (15 Lok Sabha + 7 Rajya Sabha)	Set up under the provision of Government of India Act, 1919. Examine the reports of CAG.
Estimates Committee (1950)	30 (Lok Sabha)	Set up on the recommendation of John Mathai. Examine the estimates included in Budget.
Committee on Public Undertakings (1964)	22 (15 Lok Sabha + 7 Rajya Sabha)	Set up on the recommendation of Krishna Menon. Examine the reports of CAG on public undertakings.
Departmentally Related Standing Committees	31 (21 Lok Sabha + 10 Rajya Sabha)	Set up in 1993 on the recommendation of Rules Committee to secure accountability of the Executive.

Judiciary

Supreme Court (Art. 124-147)

- The Supreme Court was inaugurated on **28th January, 1950** under Government of India Act, 1935.
- At present, it consists of **34 Judges**. (One Chief Justice thirty-three other Judges)



Appointment

- **Chief Justice of India** is appointed by President after the consultation with such judges of Supreme Court and High Court as he/she deems necessary.
- **Other Judges** are appointed by – President after consultation with the Chief Justice and such other judges of Supreme Court and High Court as he/she deems necessary.

Qualification

- He should be a citizen of India.
- He should have been a judge of a High Court (or high courts in succession) for five years; or
- He should have been an advocate of a High Court (or High Courts in succession) for ten years; or he should be a distinguished jurist in the opinion of the President.

Tenure and Removal

- Hold office till he/she attains 65 years.
- Resign by writing to President.
- Removed by President on the recommendation of Parliament.

High Court

- The institution of high court originated in India in 1862.
- 7th Constitutional Amendment Act of 1956 authorised the Parliament to establish a common high court for two or more states or for two or more states and a union territory.
- At present, there are **25 high courts** in the country.

Appointment

- The chief justice is appointed by the President after consultation with the chief justice of India and the governor of the state.
- For appointment of other judges, the chief justice of the concerned high court is also consulted.
- In case of a common high court for two or more states, the governors of all the states concerned are consulted by the President.

Qualification

- Be a citizen of India
- At least 10 years of experience as a judicial officer in India
- At least 10 years of experience as an advocate of a High Court of India in succession.

Tenure and Removal

- Hold office till he/she attains 62 years.
- Resign by writing to President or removed by President on the recommendation of Parliament.

- **Leila Seth** was the first woman to become Chief Justice of a State High Court in 1978.



Leila Seth

- **Justice Anna Chandy** (1905-1996) was the first woman to become a High Court judge in India in 1959.
- **Justice Fathima M. Beevi** was the first woman judge of the Supreme Court.

Lok Adalat

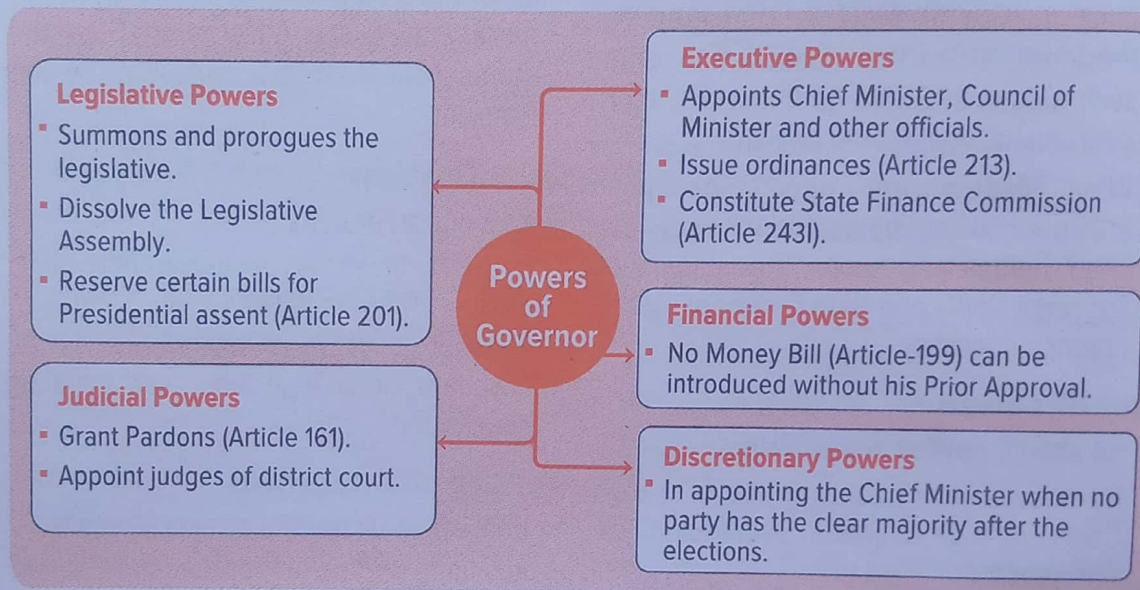
- It is a forum for settling disputes outside of the court system.
- It is also known as the People's Court.
- Given statutory status under the Legal Services Authorities Act, 1987.
- The first Lok Adalat was held in Una, Junagadh, **Gujarat** on 14th March, 1982.

State Executive

Article 153 to 167 in Part VI of the Constitution deals with the State Executive.

Governor

- He is executive Head of the State who is not directly elected by the people nor indirectly elected by the electoral college.
- 7th Constitutional Amendment Act, 1956 authorises the appointment of the same person as a governor of two or more states.
- Hold office for a term of five years. (Term depends on the pleasure of the President)
- He must be a citizen of India and completed the age of 35 years.



Chief Minister

Council of Ministers

- Chief Minister is appointed by the Governor and other minister on the advice of Chief Minister. (Article 164)
- There shall be a Council of Ministers with the Chief Minister as the head to aid and advise the Governor. (Article 163)
- Council of Minister is collectively responsible to legislative Assembly.
- **Article 169** deals with the creation and abolition of Council in States.
- Most of the states have Unicameral System. At present, **six states** have Bicameral System – Andhra Pradesh, Telangana, Uttar Pradesh, Bihar, Maharashtra and Karnataka.
- Maximum strength of Council is fixed at **1/3rd** of the total strength of the assembly and minimum strength is fixed at **40**.
- For becoming the member of the Council, one should not be less than **30 years**.

State Legislature

Articles 168 to 212 in Part VI of the Constitution.

Legislative Councils

- **Upper house** of the State Legislature.
- **Continuing chamber** like the Rajya Sabha.
- **One-third** of its members retire every two years, serving **six-year** terms.

Election of Legislative Council

- Members of the Legislative Council are indirectly elected through
 - One-third by local bodies (municipalities, district boards, etc.).
 - One-twelfth by graduates of three years standing.

- One-twelfth by teachers of three years standing.
- One-third by the legislative assembly members.
- Remainder are nominated by the governor from individuals with special knowledge or experience in literature, science, art, cooperative movement and social service.

Legislative Assembly

- Consists of directly elected representatives.
- The maximum strength is 500 and the minimum is 60. However, some smaller states have lower minimums: Arunachal Pradesh, Sikkim and Goa have a minimum of 30, Mizoram 40 and Nagaland 46.
- Not a continuing Chamber.
- Normal term is for 5 years.
- For becoming the member of the Council, one should not be less than 25 Years.

- **Uttar Pradesh** has the highest number of seats in legislative assembly (403) followed by West Bengal (294).
- **Uttar Pradesh** has the highest number of seats in Legislative Council (100) followed by Maharashtra. (78)

Centre-State Relations

- Oriented towards Federalism; and this Federal structure has been taken from **Canada**.
- In the **7th Schedule**, three lists have been given related to division of powers; Union List (100 Subjects), State List (61 Subjects), Concurrent List (52 Subjects).
- **Parliament** can make laws for the entire country or any part of it.
- **State Legislatures** can make laws for the entire state or any part of it.
- If the Rajya Sabha passes a resolution by a two-thirds majority, Parliament can make laws on a state subject also. (Article 249)

Sarkaria Commission

- **Set up** in - 1983
- **Submit Report** in - 1987
- **Chaired by** - RS Sarkaria (other members were - B. Sivaraman and SR Sen)
- Recommended establishing a permanent Inter-State Council. (Article 263)

Inter-State Council

- Article 263 provides for the establishment of an Inter-State Council by the President.
- Established - 1990
- On the Recommendation of - Sarkaria Commission
- Composition of the Council
 - Chairman - Prime Minister
 - Chief Minister of all the states.
 - Chief Ministers of union territories with Legislative Assemblies.
 - Administrators of union territories without Legislative Assemblies.
 - Governors of states under President's rule.
 - Six Central Cabinet Ministers (including the Home Minister) nominated by the Prime Minister.
 - Five Ministers of Cabinet rank/Minister of State (independent charge) nominated by the Chairman as permanent invitees.

Zonal Council

- A Statutory body established by the States Reorganisation Act of 1956.
- Act divided the country into five zones - Northern, Central, Eastern, Western and Southern.
- Composition of Zonal Councils
 - Chairman - Home Minister
 - Chief Ministers of all states in the zone
 - Two other ministers from each state in the zone
 - Administrator of each Union Territory in the zone.
 - Each chief minister acts as a vice-chairman of the council by rotation, holding office for one year at a time.

Zonal Council and Headquarters

Council/ Headquarters	Members
Northern (New Delhi)	J & K, Ladakh, HP, Haryana, Punjab, Rajasthan, Delhi & Chandigarh
Central (Allahabad)	UP, Uttarakhand, Chhattisgarh and MP
Eastern (Kolkata)	Bihar, Jharkhand, West Bengal and Odisha
Western (Mumbai)	Gujarat, Maharashtra, Goa, Dadra and Nagar Haveli and Daman and Diu
Southern (Chennai)	Andhra Pradesh, Telangana, Karnataka, Tamil Nadu, Kerala and Puducherry
North- Eastern (Shillong)	Assam, Manipur, Mizoram, Arunachal Pradesh, Nagaland, Meghalaya, Tripura and Sikkim

Panchayati Raj

- It refers to the system of rural local self-government in India.
- Recommended by **Balwant Rai Mehta Committee** (1957).
- **Rajasthan** was the first state to implement Panchayati Raj on 2nd October, 1959, followed by Andhra Pradesh
- Got Constitutional status by the 73rd Constitutional Amendment Act of 1992.

Three-tier System of Panchayat Gram Panchayat (Village Level)

- Headed by a Sarpanch.
- Members are directly elected by the villagers.

Panchayat Samiti (Block Level)

- Headed by a Chairperson, elected by members.
- Composed of elected representatives from various Gram Panchayats in the block.

Zila Parishad (District Level)

- Headed by a Chairperson.
- Members are elected by the representatives of Panchayat Samitis.

Municipalities

- The first municipal corporation in India was established in **Madras**. (1687-88)
- Got Constitutionalised by the 74th Constitutional Amendment Act, 1992.

Three Types of Municipalities

- **Nagar Panchayat** For a transitional area moving from rural to urban.
- **Municipal Council** For a smaller urban area.
- **Municipal Corporation** For a larger urban area.

Constitutional and Non-Constitutional Bodies

Election Commission of India

- Article - 324 to 329
- Multi-Member body (1 Chief Election Commissioner + 2 Other Commissioners)
- Appointed by- President
- Removed by - Impeachment
- Hold office for term of 6 years or until attain the age of 65 years.

Finance Commission (Article 280)

- Balancing wheel of Fiscal-Federalism in India. Constituted by the President every 5 years.
- Multi-Member body (1 Chairman + 4 Other Members)
- Recommends distribution of tax revenues between Centre and States.

▪ **Consolidated Fund of India** (Article 266(1))
Main fund for all government revenues (taxes, loans, etc.) and expenditure. Requires parliamentary approval for withdrawals.

▪ **Contingency Fund of India** (Article 267(1))
Used for unforeseen expenditures. Operated by the President.

▪ **Public Account of India** (Article 266(2))
Deals with money held by the government in trust (e.g., provident fund, small savings). Does not require parliamentary approval for withdrawals.

Other Constitutional Bodies

Constitutional Bodies	Article	Description
Union Public Service Commission (UPSC)	Article 315-323	Conducts examinations for recruitment to all-India and central government services.
State Public Service Commission (SPSC)	Article 315-323	Conducts recruitment for state-level civil services.
Comptroller and Auditor General of India (CAG)	Article 148	Audits government accounts and ensures accountability of public funds.
Attorney General of India	Article 76	Chief legal advisor to the Government of India.
Advocate General of the State	Article 165	Chief legal advisor to the State Government.
National Commission for Scheduled Castes (NCSC)	Article 338	Monitors safeguards provided for Scheduled Castes and advises on their welfare.
National Commission for Scheduled Tribes (NCST)	Article 338A	Monitors safeguards and welfare for Scheduled Tribes.
State Election Commission (SEC)	Article 243K	Conducts elections for Panchayati Raj Institutions and Municipalities.
National Commission for Backward Classes (NCBC)	Article 338B	Works to protect the interest of socially and educationally Backward Classes (BCs).

Non-Constitutional Bodies

Body	Members	Tenure
Central Information Commission (CIC), 2005	1 Chief Information Commissioner + Not more than 10 Information Commissioners.	Three years or until they reach the age of 65, whichever comes first
National Human Rights Commission (NHRC), 1993	1 Chairman +5 members	Three years or until they turn 70 years old, whichever comes first
State Human Rights Commission (SHRC), 1993	1 Chairman +2 members	Three years or until they turn 70 years old, whichever comes first
National Commission for Women (NCW), 1992	1 Chairman +5 members	Three Years
National Commission for Minorities (NCM), 1978	1 Chairperson+1 Vice-Chairperson+ 5 members	Three Years
Central Vigilance Commission (CVC), 1964	1 Chief Vigilance Commissioner + Not more than 2 Vigilance Commissioners.	Four years or until they reach the age of 65, whichever comes first

Official Language

- Part - XVII; Article - 343 to 351
- Official Language - Hindi (Devnagari Script)
- First Official Language Commission (1955)
Chaired by - **BG Kher**
- In Eighth schedule of the Indian Constitution 22 languages are recognised.

Classical Language

Languages	Year	Languages	Year
Tamil	2004	Sanskrit	2005
Telugu	2008	Kannada	2008
Malayalam	2013	Odia	2014
Marathi	2024	Pali	2024
Prakrit	2024	Assamese	2024
Bengali	2024		

Important Constitutional Amendments

Amendment	Description
1st (1951)	It was enacted to overcome certain practical difficulties related to Fundamental Rights . It also added 9th Schedule.
7th (1956)	Provided for the establishment of a Common High Court for two or more states.
9th (1960)	Transferred certain territories to Pakistan following the 1958 Indo-Pak Agreement.
14th (1963)	It incorporated Pondicherry in India from France.
38th (1975)	It made proclamation of emergency immune from judicial review. Empowered the President to declare proclamations of national emergency on different grounds.
42nd (1976)	It is also called Mini Constitution . It incorporated the words 'Socialist, Secular and Integrity'. Added fundamental duties by the recommendations of Swaran Singh Committee.
44th (1978)	It restored the normal duration of the Lok Sabha and Legislative Assembly to 5 years. The Right to Property was deleted from Part III and made a legal right. Replaced the term internal disturbance by Armed Rebellion in National Emergency. Made provision that A-20 and A-21 never be suspended.
52nd (1985)	Added 10th Schedule in the Constitution (Anti-defection law)
61st (1988)	It reduced the voting age from 21 to 18 years for the Lok Sabha as well as State Assemblies.
69th (1991)	Grant special status to Delhi
73rd (1992)	Granted Constitutional status to the 'Panchayati Raj Institutions' by adding Part-IX.
74th (1992)	Granted Constitutional status to the 'urban local bodies' by adding Part-IXA.
86th (2002)	Article 21 (A) which makes primary education a Fundamental Right to children between age of 6-14 years was added. 11th Fundamental Duty was also added through this.
91st (2003)	Council of Ministers include Prime Minister shall not exceed 15% of the total number of members of the Lok Sabha or Legislative Assembly in the states.
92nd (2003)	Four languages were added in 8th Schedule—Bodo, Dogri, Maithili and Santhali.
97th (2011)	It granted constitutional status to cooperative societies and inserted part IX-B containing provisions for their democratic functioning.
99th (2014)	It provides for the formation of a National Judicial Appointments Commission.
100th (2015)	Exchange of certain enclave territories with Bangladesh and conferment of citizenship rights to residents of enclaves consequent to signing of Land Boundary Agreement (LBA) Treaty between India and Bangladesh.
101st (2016)	Introduced GST in India.
102nd (2018)	It provides the constitutional status to National Commission for Backward Classes.
103rd (2018)	It provides the 10% reservation for Economically Weak Section (EWS) of society.
104th (2019)	It extended reservation of seats for members from SC/ST in Lok Sabha and State Legislative Assemblies for a period of 10 years.
106th (2023)	It provided one-third (33%) of total seats in the house of people, the Legislative Assembly of every State and the Legislative Assembly of the National Capital Territory of Delhi to be reserved for women for 15 years.



INDIAN ECONOMY

Overview of Indian Economy

- India has adopted mixed economy to accelerate the pace of economic development.
- It ranks 5th largest globally by nominal GDP and 3rd largest by Purchasing Power Parity (PPP).
- **Agrarian Economy** Despite development, 58% of the workforce remains in agriculture.

Challenges for Indian Economy

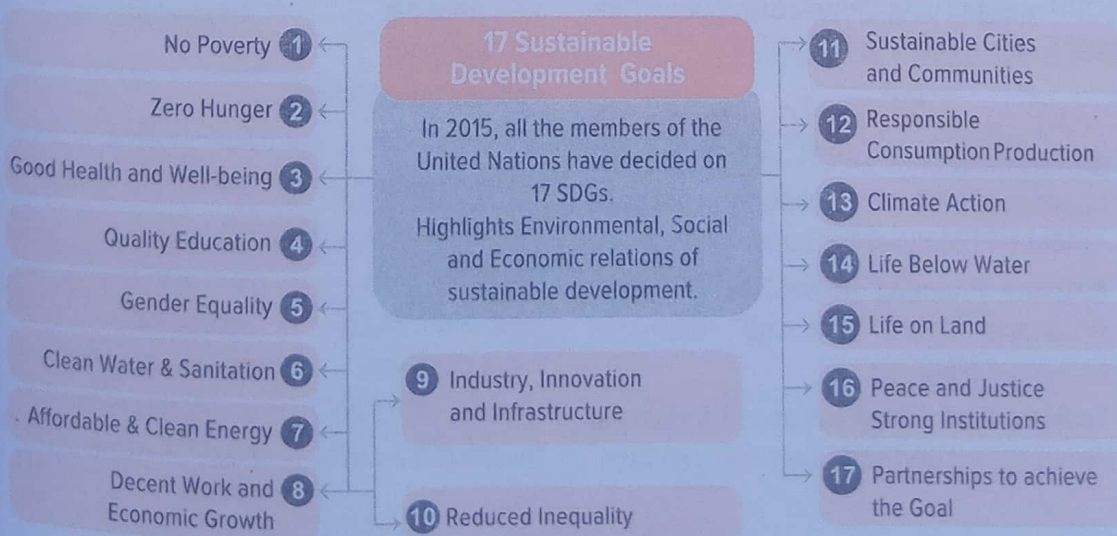
- Slow Growth
- Capital Deficiency
- Agricultural Dependency
- Unequal Income Distribution
- Mass poverty, chronic inflation and high levels of unemployment.

Broad Sectors of the Indian Economy

- **Primary Sector** Agriculture, forestry, fishing and mining.
- **Secondary Sector** Manufacturing, electricity, gas and water supply and construction.
- **Tertiary Sector** (Service Sector) Business services, transport, telecommunication, banking, insurance, real estate, community and personal services.

Human Development Index (HDI)

- Developed by Pakistani economist **Mahbub ul Haq** and Indian economist **Amartya Sen**.
- **Three Basic Dimensions** Life Expectancy, Education and Standard of Living.
- **India's Ranking** 134 out of 193 countries with HDI value 0.644. (In HDI-2024)



National Income

- National Income (NI) of India was first calculated by **Dadabhai Naoroji** (1876)
- It is sum of all factor incomes earned by the citizens of a country (whether within the country or abroad).
- National Income (Market Price)
= NNP = GNP – Depreciation
- National Income (Factor Cost)
= NNP – Indirect Taxes + Subsidies

Measures of National Income

- **Gross Domestic Product (GDP)**
Represents the final value of all goods and services produced within the country in a year.
- **Net Domestic Product (NDP)** Accounts for the depreciation (loss in value) of capital goods.

$$\text{NDP} = \text{GDP} - \text{Depreciation}$$

- **Gross National Product (GNP)** Total value of all final goods and services produced by the nationals (citizens) of a country, irrespective of their location, within a year.
- **Net National Product (NNP)** Reflects the net value after accounting for depreciation.

$$\text{NNP} = \text{GNP} - \text{Depreciation}$$

National Statistical Office (NSO)

In 2019, National Sample Survey Office (NSSO) merged with Central Statistics Office (CSO) to form the NSO.

Economic Planning in India

- **M. Visvesvaraya** (1934) introduced the concept of a planned economy in his book - *Planned Economy for India*.
- **National Planning Committee** (1938) by Jawaharlal Nehru proposed structured economic planning.
- **Bombay Plan** (1944) proposed industrial development and economic self-reliance.

- **Gandhian Plan** (1944) by S.N. Agarwal emphasized decentralized village economies and self-sufficiency.
- **People's Plan** (1945) by M.N. Roy advocated socialist principles.
- **Sarvodaya Plan** (1950) by J.P. Narayan, inspired by Gandhian ideals.

Planning Commission

- **Established** 1950
- **Chairperson** Pandit Jawaharlal Nehru
- **Objective** Achieve rapid economic growth.

National Development Council (NDC)

- **Establishment** August 6, 1952
- **Function** To promote shared economic policies and balanced development

NITI Aayog

- **Full form** National Institution for Transforming India
- **Established** 1st January 2015, replacing the Planning Commission.
- **Role** Government's policy-making think tank
- **Chairperson** Prime Minister of India

Five Years Plans at a Glance

Plan	Important Sector
First (1951-56) (Harrod Domar Model)	Agriculture, Irrigation, Electricity
Second (1956-61) (PC Mahalanobis Model)	Heavy Industries
Third (1961-66) (Gadgil Model)	Food grains, Heavy Industries
Plan Holiday (1966-69)	
Fourth (1969-74)	Agriculture
Fifth (1974-78) (Garibi Hatao)	Removal of Poverty
Rolling Plan (1978-80)	
Sixth (1980-85)	Agriculture, Industries
Seventh (1985-90)	Energy, food grains
Two Annual Plans (1990-92)	
Eighth (1992-97)	Human Resource
Ninth (1997-2002)	Social Justice
Tenth (2002-07)	Income, Energy
Eleventh (2007-2012)	Inclusive Growth
Twelfth (2012-2017)	Faster, Sustainable growth

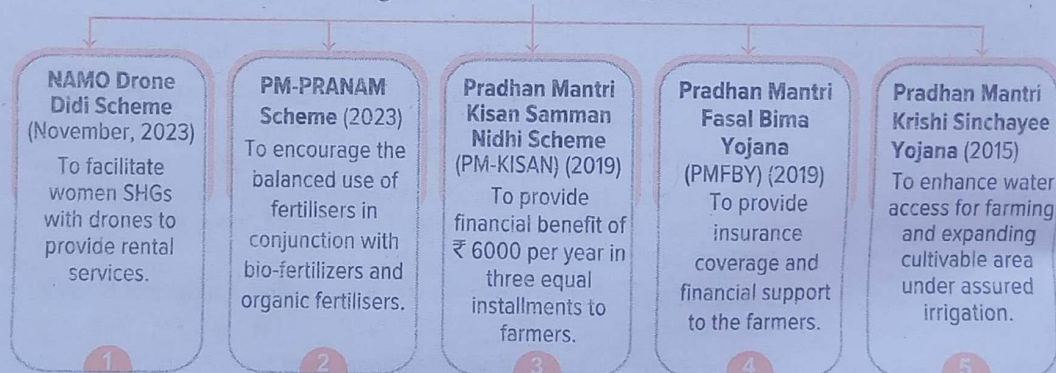
Major Schemes of Central Government

Social Welfare/Upliftment Schemes

Schemes/Plans	Purpose
Unified Pension Scheme (UPS)	Started on 1st April, 2024 to remove the shortcomings of the National Pension Scheme (NPS) and provide stable pension to government employees
Bima Sakhi Yojana	Started in December, 2024 for women between 18 and 70 years. They will be made insurance agents and provided training and honorarium of ₹ 7000, ₹ 6000 and ₹ 5000 per month in the first, second and third year.
Pradhan Mantri Janjatiya Unnat Gram Abhiyan (JUGA)	Started in October, 2024 to improve the economic, social, educational and basic infrastructure status of tribal communities
NPS Vatsalya	Started in September, 2024 as a long term investment and pension planning by parents for the better future of their children.
Pradhan Mantri Suryodaya Yojana	Started in February, 2024. Solar panels will be installed on the roofs of 1 crore houses.
Mahila Samman Savings Certificate Scheme	Started in April, 2023 to financially empower women (7.5% interest on deposits up to ₹ 2 lakh)
Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyaan (PM JANAMAN)	Started on 15th November, 2023 to improve the socio-economic condition of particularly vulnerable tribal groups
PM Vishwakarma Scheme	Started in September, 2023 to provide lowest interest rate loans without guarantee to 30 lakh families of traditional craftsmen and artisans
Pradhan Mantri Poshan Shakti Nirman (POSHAN)	Started in 2021 to provide nutritious midday meals to children up to class 8 by the Ministry of Education. Previously known as Mid-Day Meal .
PM Gati Shakti	Started in October, 2021. Digital platform designed to integrate various ministries such as Railways and Roadways, for coordinated planning and execution of infrastructure projects.
Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY)	Started in April, 2020. Launched in response to COVID-19 pandemic. Distribution of 5 kg of free food grains each month, along with cash transfers to women and elderly.
Atmanirbhar Bharat Abhiyan	Started in May, 2020 to promote local products and cutting down import dependence
One Nation One Ration Card	Started in August, 2019. Allows all National Food Security Act (NFSA) beneficiaries, particularly migrant beneficiaries, to claim either full or part foodgrains from any Fair Price Shop (FPS) in the country.
Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA)	Started in February, 2017 to make people in rural areas digitally literate by training them on computers and digital devices.
Saubhagya Scheme	Started in December, 2017 to provide electricity to every household
Startup India Campaign	Started in January, 2016 to encourage employment generation by providing financial assistance to new enterprises
Sukanya Samriddhi Yojana	Started in January, 2015. Deposit ₹ 1000 per month in the girl child's account till she reaches the age of 10 years. 50% can be withdrawn when she reaches the age of 18 years.
Pradhan Mantri Kaushal Vikas Yojana (PMKVY)	Started in July, 2015 to provide better employment opportunities to the youth by providing them industry related skill training
Deendayal Gram Jyoti Yojana	Started in July, 2015 to electrify all the villages in the country
Smart City Mission	Started in July, 2015 to transform 100 cities to provide the necessary core infrastructure and clean and sustainable environment

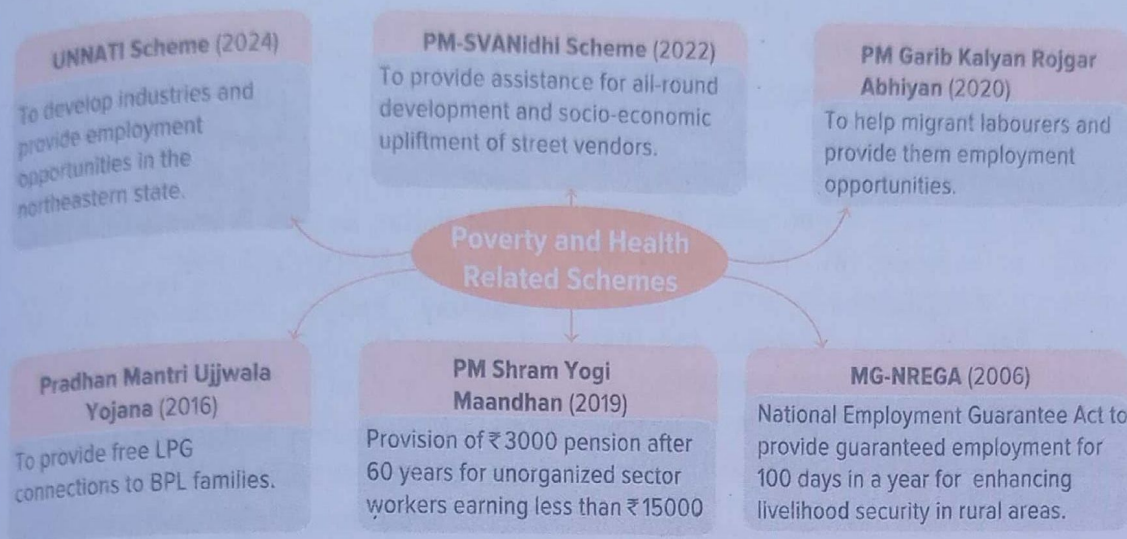
Schemes/Plans	Purpose
HRIDAY	Started in January, 2015 to maintain national heritage and monuments and upgradation of the entire ecosystem
Digital India	Started in July, 2015 to connect rural areas to the Internet and increasing public access to government department
Pradhan Mantri Suraksha Bima Yojana (PMSBY)	Started in May, 2015 to provide insurance of ₹ 2 lakh on death or total disability and ₹ 1 lakh on partial disability for people aged 18-70 years at ₹ 20 annual premium
Atal Pension Scheme (Ministry of Finance)	Started in May, 2015 to provide pension of ₹ 1000 to ₹ 5000 after 60 years of age to persons in the 18-40 age group.
Mudra Scheme	Started in April, 2015 to provide financial assistance for the development of micro enterprises. Shishu loan up to ₹ 50 thousand, Kishor loan up to ₹ 5 lakh, Tarun Loan up to ₹ 10 Lakh, Tarun Plus up to ₹ 20 Lakh
Beti Bachao Beti Padhao	Started in January, 2015 to create awareness for protection and education of girls against female foeticide
Pradhan Mantri Jan Dhan Yojana (PMJDY)	Started in August, 2014 to provide banking facilities to all families across the country
Make in India Scheme	Started in September, 2014 to promote manufacturing in the country.
Swachh Bharat Abhiyan	Started in October, 2014 to achieve universal sanitation coverage.
Namami Gange Scheme (Ministry of Jal Shakti)	Started in July, 2014 to accomplish effective abatement of pollution and conservation and rejuvenation of National River Ganga.

Agriculture Related Schemes



Education and Health Related Schemes

Scheme	Purpose
One Nation One Subscription Scheme (ONOS)	Started in January, 2025 for access to high-quality education for students and researchers
Prime Minister's Internship Scheme	Started in October, 2024. Introduction of 12 months monthly Internship Scheme for eligible candidates in the age group of 21-24 years .
PM Vidya Lakshmi Yojana	Started in November, 2024 to provide comprehensive assistance to students for pursuing vocational and technical education (providing loan facility)
Pradhan Mantri Schools for Rising India (PM-SHRI) Scheme	Started in 2022 to establish over 14,500 PM SHRI Schools and to create an inclusive and welcoming atmosphere for every student, ensuring their well-being and providing a secure and enriching learning environment.
Ayushman Bharat PM Jan Arogya Yojana (AB PM-JAY)	Started in 2018 as world's largest health insurance scheme which offers a sum insured of ₹ 5 lakh per year per family for secondary and tertiary care. 2024 Expansion in AB PM-JAY to all senior citizens aged 70 years and above by providing them with free health insurance coverage of up to ₹ 5 lakh per family.



Banking and Finance

- **Bank of Hindustan** (1770) First bank, established in India in 1770.
- **Oudh Commercial Bank** (1881) First bank with limited liability managed by an Indian Board
- **Punjab National Bank** (1894) First purely Indian bank.

State Bank of India (SBI)

- Establishment Imperial Bank of India was established in 1921 through the merger of three presidency banks
 - Bank of Bengal (Founded in 1806)
 - Bank of Madras (Founded in 1843)
 - Bank of Bombay (Founded in 1840)
- Nationalisation on July 1, 1955 and renamed State Bank of India (SBI)

Reserve Bank of India (RBI)

- Established - 1935, under RBI Act, 1934
- Nationalisation - 1949
- First Indian Governor - **C.D. Deshmukh**
- Headquarters - Mumbai
- Functions - Banker to Government, Banker to banks, Lender of last resort, Foreign exchange Management, Currency issuer, Banking regulation, etc.
- Signature on Notes
 - ₹2 and above - Signed by the Governor of the Reserve Bank of India.
 - ₹1 Signed by the Finance Secretary.

Nationalisation of Banks

- In **1969**, 14 banks with deposits over ₹ 50 crore were nationalised on July 19.
- In **1980**, 6 private banks with deposits over ₹ 200 crore were nationalized on April 15.

Mergers of Banks

- In **1993**, New Bank of India merged with Punjab National Bank (PNB) on September 4.
- In **2019**
 - Oriental Bank of Commerce and United Bank of India merged with PNB.
 - Syndicate Bank merged with Canara Bank.
 - Andhra Bank and Corporation Bank merged with Union Bank of India.
 - Allahabad Bank merged with Indian Bank.
- **Current Count** - 12 Nationalised banks in India.

Major Securities Printing Centers of India

Units	Place
India Security Press	Nashik (Maharashtra)
Currency Note Press	Nashik (Maharashtra)
Bank Note Press	Dewas (MP)
Security Printing Press	Hyderabad (Telangana)
Security Paper Mill	Narmadapuram (Madhya Pradesh)
India Government Mint	Mumbai, Hyderabad, Kolkata, Noida

Insurance Industry

- Began in 1918 with Oriental Life Insurance Company, Calcutta.
- **Nationalisation** 1st September, 1956.
- **LIC** Life Insurance Corporation of India (LIC) established in 1956 with an authorised capital of ₹ 5 crore.
- State Bank of India (SBI) was the first bank to enter the insurance sector.
- Regulation Regulated by the Insurance Regulatory and Development Authority of India (IRDAI).

NABARD (National Bank for

Agriculture and Rural Development)

- **Established** July 12, 1982, based on B. Sivaraman Committee recommendations.
- **Objective** To provide finance for agriculture and rural development.

Stock and Share Market

- **Bombay Stock Exchange (BSE)** Oldest stock exchange in Asia, established in 1875
- **National Stock Exchange (NSE)** was established in 1992, Mumbai, based on Pherwani Committee recommendations
- Recognised Stock Exchanges in India-23

Prominent Stock Exchanges

Stock Exchange	Key Index
New York Stock Exchange (NYSE)	Dow Jones, S&P 500
NASDAQ	NASDAQ Composite
Shanghai Stock Exchange (SSE)	SSE Composite Index
Euronext	Euronext 100
Japan Exchange Group (JPX)	Nikkei 225, TOPIX
Hong Kong Stock Exchange (HKEX)	Hang Seng Index
Shenzhen Stock Exchange (SZSE)	SZSE Component Index
London Stock Exchange (LSE)	FTSE 100
National Stock Exchange (NSE)	Nifty 50
Bombay Stock Exchange (BSE)	Sensex

Budget

- It is a financial plan detailing income (revenue) and expenditure, key to microeconomics.
- **First Indian Budget** Presented by James Wilson on February 13, 1860.
- **Railway Budget** Introduced in 1921 (Acworth Committee). Merged with the general budget in 2017.
- **First Independent Budget** Presented by R.K. Shanmugam Chetty (1947-49).
- **Zero-Based Budgeting** Concept by Peter A. Pire (1969) and introduced in India in 1987 by Finance Minister V.P. Singh.

Committees Related to Economic Reforms

Committee Name	Related Area
Rangarajan Committee	Savings and Investments, Public Expenditure
Narasimham Committee	Banking Sector Reforms
Raja Chelliah Committee	Tax Reform
Kelkar Committee	Direct and Indirect Taxes
Tarapore Committee	Convertibility of Rupee into Capital Account
Y. V. Reddy Committee	Small Savings Reform
Malegam Committee	Public Issue
V.S. Vyas	Rural Credit

Tax System

Corporate Tax Biggest Source of Central Tax Revenue

Central Government Direct Taxes

- Income tax
- Corporation tax
- Capital Gains Tax
- Securities Transaction Tax
- Wealth Tax

State Government Direct Taxes

- Stamp Duty
- Agricultural Income
- State Excise
- Land revenue
- Tax on professions

Central Government Indirect Taxes

- Goods & Services Tax (GST)
- Value Added Tax (VAT)
- Custom Duty
- Excise
- Sales Tax
- Octroi Duty
- Service Tax

State Government Indirect Taxes

- Sales Tax
- Electricity Tax
- Advertisement Tax
- Toll Tax
- Luxury Tax

Goods and Services Tax

- **Commencement** July 1, 2017
- **Features** Supply-Based Taxation, Destination-Based Taxation, Dual GST
- **GST Slabs** 0% (Essential items), 5% (Basic necessities), 12% (Standard goods), 18% (Common consumer products) and 28% (Luxury and sin goods)
- **Exemptions** Petroleum, tobacco, liquor, electricity and stamp duties are exempted from GST.

Agriculture

- Agriculture and allied sectors form the backbone of India's economy, providing employment to 56% of the population.
- **National Agricultural Insurance Scheme** was introduced in 1999 to provide financial security to farmers.

Major Agricultural Institutes

Institute Name	Location
Central Rice Research Institute (CRRI)	Cuttack, Odisha
National Dairy Research Institute (NDRI)	Karnal, Haryana
Indian Agricultural Research Institute (IARI)	New Delhi
National Centre for Organic and Natural Farming	Ghaziabad, Uttar Pradesh
Indian Veterinary Research Institute (IVRI)	Izzatnagar, Uttar Pradesh
Indian Institute of Millets Research (IIMR)	Hyderabad, Telangana
Indian Institute of Sugarcane Research (IISR)	Lucknow, Uttar Pradesh

Industries

The major industries are the Iron and Steel industry, the Textile industry and the Information and Technology industry contributing 2%, 2.3% and 7.4% respectively to India's GDP.

Iron and Steel Industry

- The first iron-steel factory was established in 1874 at **Kulti**, West Bengal.
- The first large-scale steel factory was set up by **Jamshedji Tata** in 1907 at **Sakchi** (now Jamshedpur, Jharkhand), near the Swarnarekha River.

Major Steel Factories in India

Factory Name	Location
Tata Iron and Steel Company (TISCO)	Jamshedpur, Jharkhand
Indian Iron and Steel Company (IISCO)	Burnpur, West Bengal
Visvesvaraya Iron and Steel Company	Bhadravati, Karnataka
Rourkela Integrated Steel Plant	Rourkela, Odisha

Textile and Apparel Industry

- **Specialization** Cotton, jute, silk, wool, and synthetic textiles.
- **Key Centers** Tirupur, Surat, Ludhiana, and Mumbai.
- **Global Rank** India is the largest producer of cotton and the second-largest producer of textiles.

IT and Software Industry

- **Key Hubs** Bengaluru, Hyderabad, Pune, and Gurugram.

Industrial Policy

- **New Industrial Policy** Implemented on 24 July 1991 to liberalize the economy.
- **Abid Hussain Committee** Focused on the development of small-scale industries.
- **Mira Seth Committee** Worked for the development of the handloom sector.
- **The first textile park in India** was established in Tirupur, Tamil Nadu.

Central Public Sector Enterprises

Maharatna Companies

Recognition by Government : 2009
Amount Invested : ₹ 5000 Crores

- ▶ Hindustan Aeronautics Limited 2024
- ▶ Oil India Ltd, 2023
- ▶ Rural Electrification Corporation Limited 2022
- ▶ Power Finance Corporation 2021
- ▶ Hindustan Petroleum Corporation Limited 2019
- ▶ Power Grid Corporation of India Limited 2019
- ▶ Bharat Petroleum Corporation Limited 2017
- ▶ Bharat Heavy Electricals Limited 2013
- ▶ NTPC Limited 2013
- ▶ Coal India Limited 2011
- ▶ GAIL India Limited 2010
- ▶ Indian Oil Corporation Limited 2010
- ▶ Oil & Natural Gas Corporation Limited 2010
- ▶ Steel Authority of India Limited 2010

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Miniratna Category I

- Financial Autonomy up to ₹ 500 crore or equal to their net worth, whichever is lower
- Have made profits continuously for three years or Earned a net profit of ₹ 30 crores or more in one of the three years.

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Miniratna Category II

- Financial Autonomy up to ₹ 300 crore or up to 50% of their net worth, whichever is lower.
- Have made profits continuously for the last three years and should have a positive net worth.

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Navratna CPSEs

Recognition by Government : 1997
Amount Invested : ₹ 1000 Crores

- ▶ Indian Railway Finance Corporation (IRFC), 2025
- ▶ Indian Railway Catering & Tourism Corporation (IRCTC), 2025
- ▶ Mazagon Dock Shipbuilders Limited, 2024
- ▶ Solar Energy Corporation of India (SECI) Ltd., 2024
- ▶ NHPC Limited, 2024
- ▶ SJVN Limited, 2024
- ▶ National Fertilisers Limited, 2024
- ▶ Central Warehousing Corporation, 2024
- ▶ Housing & Urban Development Corporation Ltd., 2024
- ▶ Rail Vikas Nigam Limited, 2023
- ▶ ONGC Videsh Ltd., 2023
- ▶ Rashtriya Chemicals & Fertilisers Limited, 2023
- ▶ IRCON, 2023
- ▶ RITES, 2023
- ▶ Indian Renewable Energy Development Agency Ltd., 2023
- ▶ Railtel Corporation of India Limited, 2023
- ▶ National Aluminium Company Limited, 2018
- ▶ Container Corporation of India Limited, 2014
- ▶ Engineers India Limited, 2014
- ▶ National Buildings Construction Corporation Limited, 2014
- ▶ Neyveli Lignite Corporation Limited, 2011
- ▶ Rashtriya Ispat Nigam Limited, 2010
- ▶ NMDC Limited, 2008
- ▶ Shipping Corporation of India Limited, 2008
- ▶ Bharat Electronics Limited, 2007
- ▶ Mahanagar Telephone Nigam Limited, 1997

As on 4th March, 2025

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Three Importing Countries

1. China
2. United States of America
3. United Arab Emirates (UAE)

Three Imported Items

- Petroleum Crude
- Petroleum Products
- Equipment and Machinery

Other Facts

- Asia's First Export Processing Zone : Kandla (1965)
- India's First Export Promotion Industrial Park : Sitapur, Jaipur (1997)

Three Exporting Countries

1. United States of America
2. United Arab Emirates (UAE)
3. Netherlands

Three Exported Items

1. Petroleum Products, Drugs
2. Pharmaceutical Products and Pearls
3. Precious and Semi-Precious Stones

Major Exporting States

- Maharashtra - 22.30%
- Gujarat - 17.20%
- Tamil Nadu - 12.50%

Establishment of Industries in India

Industry	Established Site (First)
Paper	Serampore, Bengal, 1832
Cotton Clothes	Calcutta (Kolkata), Bengal, 1818
Jute	Calcutta (Kolkata), Bengal, 1855
Cement	Rishra, Bengal, 1855
Fertilizer	Ranipet, Tamil Nadu, 1906

Foreign Direct Investment (FDI)

- Investment made by a company from one country in another country's businesses.
- FDI in India (FY 2023-24): Approximately \$33 billion.

Foreign Institutional Investment (FII)

- Investments made by foreign investors in a country's stock market.
- Temporary, unlike FDI which is more permanent.

India's Foreign Exchange Reserves

- Global Rank** India is the 4th largest holder of foreign exchange reserves, following China, Japan, and Switzerland.

Balance of Payments

- A record of all transactions made between one country and the rest of the world during a financial year.
- Includes both current account (imports/exports, services) and capital account (investment flows).
- Rupee Convertibility declared fully convertible on the current account on **19th August, 1994**, based on the S Tarapore Committee's recommendations.

Balance of Trade

- It is the difference between a country's exports and imports of goods and services over a specific period of time.
- It is the **largest component** of a country's balance of payments
- The main difference between balance of trade and balance of payments is that the balance of trade measures the flow of goods and services, while the balance of payments measures all international transactions.

Human Resource

- First Unofficial Census - 1872
- First Official Census - 1881
- First Census of Independent India - 1951
- National Population Council - 1969
- First National Population Policy - 1976
- National Health Policy - 1983
- National Population Commission - 2000

Population Growth Trends

- 1901-1921** Negative growth in population.
- 1921-1951** Continuous growth period.
- 1951-1981** Rapid population growth period (period of population explosion).
- 1981-2011** Declining growth period.

Census 2011

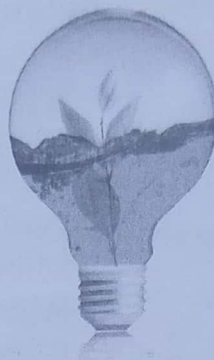
Total Population	1,210,569,573
Male Population	623,121,843 (51.54%)
Female Population	587,447,730 (48.64%)

Literacy 2011

Overall Literacy	74.04%
Male Literacy	82.14%
Female Literacy	65.46%
State with Highest Literacy	Kerala (94.60%)
States with Minimum Literacy	Bihar (61.80%), Uttar Pradesh (66.10%)

Population Density (2011 Census)

Top Density States	Lowest Density States
Bihar (1106)	Arunachal Pradesh (17)
West Bengal (1028)	Mizoram (52)
Kerala (860)	Sikkim (86)
Uttar Pradesh (829)	Nagaland (119)
Haryana (573)	Manipur (122)

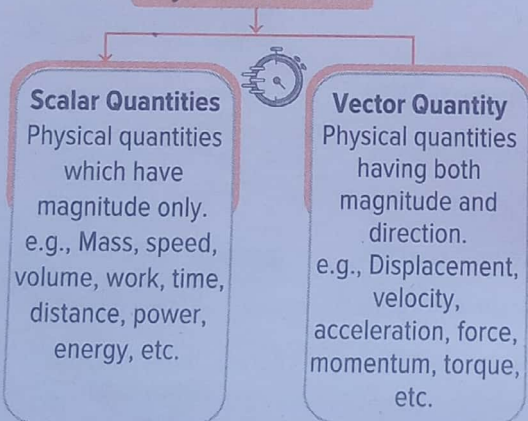


GENERAL SCIENCE

Physics

- Deals with the structure of matter and how the fundamental constituents of the universe interact.

Physical Quantities



Important Quantities and SI Unit

Quantity	SI Unit	Quantity	SI Unit
Length	Meter	Mass	Kilogram
Time	Second	Electric Current	Ampere
Thermodynamic Temperature	Kelvin	Amount of Substance	Mole
Luminous Intensity	Candela	Force	Newton
Pressure	Pascal	Energy	Joule

Quantity	SI Unit	Quantity	SI Unit
Power	Watt	Electric Charge	Coulomb
Voltage	Volt	Resistance	Ohm
Capacitance	Farad	Magnetic Flux	Weber
Magnetic Field Strength	Tesla	Frequency	Hertz
Inductance	Henry	Luminous Flux	Lumen
Illuminance	Lux	Activity of a Radioactive Source	Becquerel

Symbols of Ten to the Power

Prefix	Symbol	Power of 10
Deci	d	10^{-1}
Centi	c	10^{-2}
Milli	m	10^{-3}
Micro	μ	10^{-6}
Nano	n	10^{-9}
Pico	p	10^{-12}
Femto	f	10^{-15}
Atto	a	10^{-18}
Zepto	z	10^{-21}
Yocto	y	10^{-24}

Motion and Force

State of Rest

- When the position of an object or a body does not change with time relative to its surroundings, then that object is said to be in rest. e.g., tree, bridge etc. at one place

State of Motion

- When the position of an object or a body changes with time relative to its surroundings, then that object is said to be in a state of motion. e.g., vehicles moving on roads

Terms Related to Motion

- Distance** Length of path covered by an object in a time interval
- Displacement** Perpendicular distance between two points in a given direction
- Speed** Distance covered by an object in a unit time
- Velocity** Distance covered by an object per second in a given direction

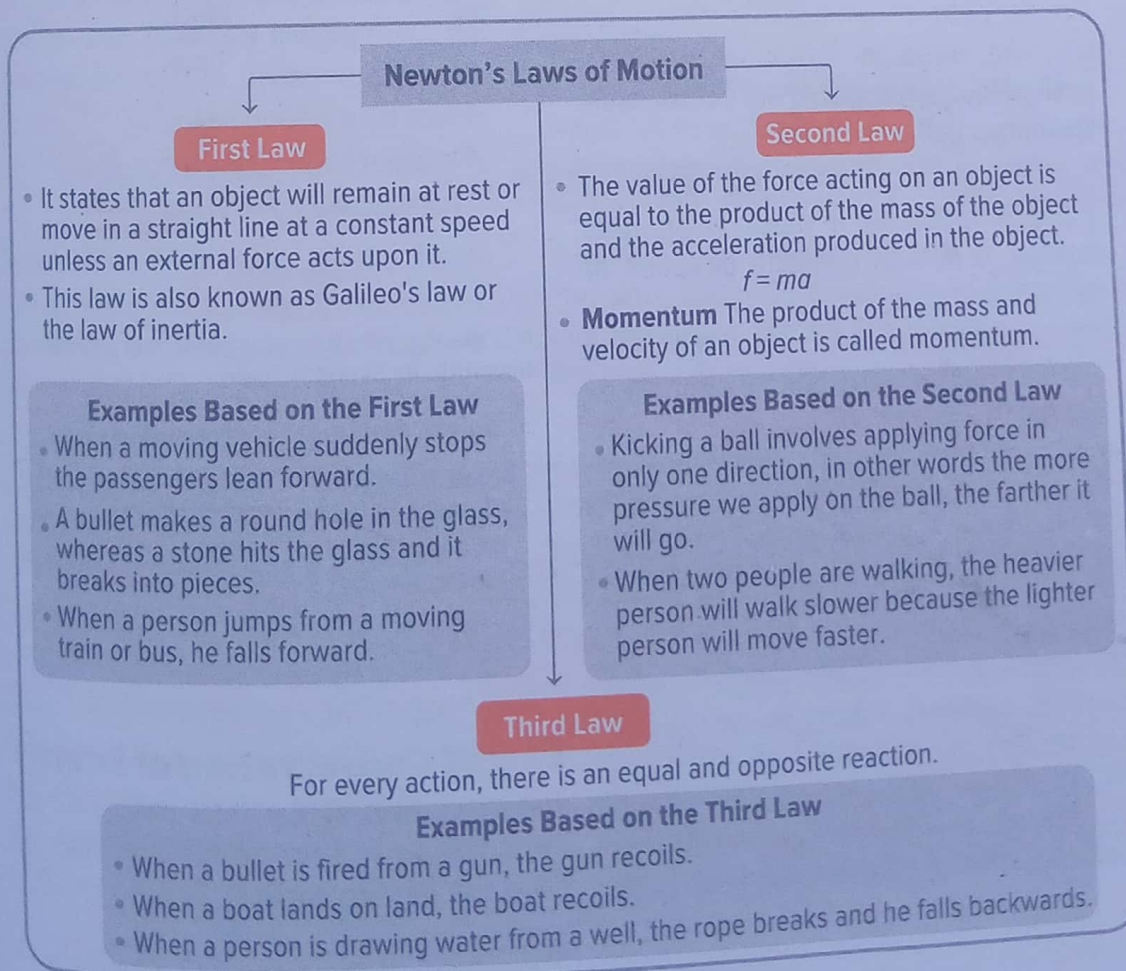
- Acceleration** Rate of change in velocity of an object with time

Projectile Motion

- When a body is thrown to some height from the surface of the earth parallel to the surface i.e. in horizontal direction, then its motion is called projectile motion.
- In projectile motion, for maximum horizontal range of the particle, the particle is projected at an angle of 45° from the horizontal.

Circular Motion

- When an object moves on a circular path, then its motion is called circular motion.
- Centripetal Acceleration** The acceleration applied on a particle moving in a circular path, perpendicular to its velocity and towards the centre of the circle is called centripetal acceleration.



Force

- Force is an external agent capable of changing body's state of **rest** or **motion**. e.g., a player can bring a football into a state of motion by kicking it.
- It is a vector quantity; whose SI unit is **Newton**.

Frictional Force

It is that opposing force which opposes the relative motion between two objects.

Methods of Reducing Friction

- By using lubricants, for example oil or grease
- By using ball-bearings
- By using soap solution
- By using powder

Centripetal & Centrifugal Force

- **Centripetal Force** It is the constant force that keeps an object moving in a circular path. It is directed towards the centre and depends on the object's mass, tangential velocity and radius of the circular path.
e.g., the force of strain on the rope pushes the item towards the centre while spinning a ball on a string.
- **Centrifugal Force** It is the apparent outward force on a mass when it is rotated. It acts in opposite direction of centripetal force.
e.g., Passengers on a merry-go-round feel pushed outward due to centrifugal force.

Torque

- The tendency of a force applied on a body to rotate it about an axis is called torque. It is a vector quantity whose SI unit is **Newton-meter**.
- Levers, pulleys, inclined planes, screw jacks etc. are simple machines which work on the principle of torque.
- A simple machine is a device in which a load placed at any other point is lifted by applying force at a convenient point.

Coriolis Force

- It is an invisible force that deflects motion on rotating objects.
- It depends on the object's mass and rotation rate, acting perpendicular to the axis of rotation. On Earth, it results from the planet's west-to-east spin.

Work, Power and Energy

Work

- Work is equal to the product of force and displacement of the object in the direction of force, its SI unit is **joule**.
 $\text{Work (W)} = \text{Force (F)} \times \text{Displacement in the direction of force (S)}$
- If force and displacement are perpendicular to each other, then the work done is zero.

Power

The rate of doing work is called power. It is a scalar quantity, its SI unit is **watt**.

$$\text{Power} = \frac{\text{Work}}{\text{Time}}$$

1 watt hour = 3600 joules

1 kilowatt hour = 3.6×10^6 joules

1 horsepower = 746 watts

Energy

It is the capacity for doing work. It is a **vector quantity**. Its SI unit is Joule.

Kinetic Energy

It is possessed by a body due to its motion is called kinetic energy.

$$\text{KE} = \frac{1}{2}mv^2$$

Potential Energy

It is the energy held by an object because of its position relative to other objects.

$$\text{PE} = mgh$$

Law of Conservation of Energy

The magnitude of the total energy of the universe is constant, which only changes from one form to another.

Some Devices that Convert Energy

Devices	Conversion of energy
Dynamo	Mechanical energy into electrical energy
Electric motor	Electrical energy into mechanical energy
Microphone	Sound energy into electrical energy
Loudspeaker	Electrical energy into sound energy
Electric bulb	Electrical energy into light and heat energy
Solar cell	Solar energy into electrical energy
Candle	Chemical energy into light and heat energy

Gravitation

Newton's Law of Gravity

- The force of attraction acting between any two bodies is directly proportional to the product of the masses of the bodies and inversely proportional to the square of the distance between them.

$$F = G \frac{m_1 m_2}{R^2}$$

- Atmosphere is present on the earth due to the gravity of the earth, due to gravity the particles of the atmosphere are not able to leave the earth.
- The acceleration produced due to gravity is called **gravitational acceleration** (g) and its value on the surface of the earth is **9.8 m/s²**.
- The value of gravitational acceleration g on the moon is 1/6 of the value of gravitational acceleration on the earth.
- The three main factors affecting the value of gravitational acceleration g are altitude, depth and latitude and rotation of the earth.

Change in the Value of g

- The value of g decreases when we go below or above the surface of the earth. The value of g is maximum at the poles of the earth.
- The value of g is minimum at the equator.
- The value of g decreases when the rotation speed of the earth increases. The value of g increases when the rotation speed of the earth decreases.
- The value of ' g ' is zero at the centre of the earth.

Weight

The earth attracts every object towards its centre with a certain force. Hence, the force with which the earth attracts an object towards its centre is called the weight of the object.

Weight of a Body in a Lift

- When the lift goes upwards, the weight of the object seems to have increased.
- When the lift comes downwards, the weight of the object seems to have decreased.

Satellite

- A body revolving around a planet is called the satellite of that planet.
- Every satellite revolves around its planet in its orbit at a constant velocity. This velocity is called orbital velocity.
- The time taken by a satellite to complete one revolution around the planet is called the period of revolution.
- Geostationary Satellite** revolves around the Earth from west to east in a plane perpendicular to the Earth's axis.
- Its period of revolution is equal to the Earth's period of revolution (24 hours) and the orbital velocity is **3.1 km/s**.
- It revolves around the Earth at a height of about **36000 km** from the Earth's surface.
- The possibility of setting up a communication satellite in a **Geosynchronous orbit** was first expressed by **Arthur C. Clarke**.

- Geostationary satellites are used for radio broadcasting and weather forecasting.

Polar Satellites

- They revolve in a close orbit around the Earth.
- Their orbital velocity is 8 km/s and period of revolution is 84 min.
- They are used to get information about the weather.

Escape Velocity

- It is the minimum velocity with which a body is thrown upwards from the surface of the earth and crosses the gravitational field and never comes back.
- The value of escape velocity on the surface of the earth is **11.2 km/s**.
- Escape velocity is $\sqrt{2}$ times the orbital velocity.
- Escape velocity on the moon is **2.37 km/s**, due to which there is no atmosphere there.
- The value of escape **velocity** does not depend on the **mass** of the object and the **angle** of launch.

Properties of Solid and Liquid Substances

Elasticity

It is the property of a substance due to which the object resists any kind of change caused by the external force applied on it and as soon as the external force is removed, it returns to its previous state.

Strain

The change in the unit size of an object is called the **strain** of that object.

Stress

- The internal force applied per unit area is called stress.
- Its SI unit is **Newton/meter²** or **Pascal**.

- The ratio of stress and strain is constant, it is called **elastic coefficient**.

$$E = \frac{\text{Stress}}{\text{Strain}}$$

It is called **Hooke's law**.

- The value of elastic modulus (E) is different for different substances.
- If strain and stress are longitudinal, then the elastic modulus is called **Young's Modulus of Elasticity**.

Pressure

- The external force applied on unit area of a surface is called **pressure**.

$$\text{Pressure (P)} = \text{Force (F)} / \text{Area (A)}$$

- Its SI unit is **Newton/m²**. It is a scalar quantity.
- Atmospheric pressure is the pressure applied by a 76 cm long column of mercury at sea level at **0°C** to **45°** latitudes.
- The unit of atmospheric pressure is bar.
 $1 \text{ bar} = 100 \text{ kilo N/m}^2$
- The pressure at any point within a liquid depends on the depth of that point from the free surface of the liquid, the density of the liquid and the gravitational acceleration.
- According to **Pascal's law**, the pressure applied on any part of a confined liquid is transmitted equally to every part of the liquid.
- Hydraulic lift, hydraulic press, hydraulic brake etc. are based on **Pascal's law**.

Barometer

- Atmospheric pressure is measured by a **barometer**. Weather is predicted with its help.



- When the reading of the barometer falls suddenly, there is a **possibility of a storm**.
- When the reading of the barometer falls slowly, there is a **possibility of rain**.
- When the reading of the barometer rises slowly, there is a **possibility of a clear day**.

Buoyancy

- It is the property of a liquid due to which it exerts an upward force on objects. This force is called up thrust force.
- Its study was first given by Archimedes.

Archimedes Principle

When an object is fully or partially immersed in a liquid, its weight decreases, this virtual decrease in weight is equal to the weight of the liquid displaced by the object.

e.g., a small ball made of iron sinks in water and a large ship floats, because the weight of the water displaced by the ship is equal to its weight.

Density

- Mass per unit volume is called density.

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

- The SI unit of density is kg/m^3 .
- Relative density = Density of the object / Density of water at 4°C
- Water has maximum density at 4°C . At this scale, the density of water is 103 kg/m .
- Relative density is measured with a **hydrometer**.
- On reaching the sea from the river, the ship rises a little, because due to the salt present in the sea, its density is high, i.e. the density of sea water is more than ordinary water.
- The density of iron is more than the density of water and less than the density of mercury, so the piece of iron sinks in water, but floats in mercury.
- When ice floats in water, 1/10th of its volume remains above the water.
- A vessel is filled with water and ice is floating on it, when the ice melts completely, the level of water in the vessel does not increase, it remains the same as before.

Surface Tension

- The free surface of every liquid shows a tendency to shrink and take up minimum area, which is called surface tension of the liquid. Its SI unit is **Newton/meter**.
- Surface tension decreases on increasing the temperature of the liquid and becomes zero at the critical temperature.
- **Cohesive Force** is the force of attraction between the molecules of the same substance is called cohesive force. The value of cohesive force in gases is negligible.
- **Adhesive Force** is the force of attraction between the molecules of two different substances is called adhesive force.
- The surface tension of clean water is more than the surface tension of soap solution. Hence, the surface tension of water can be reduced by mixing soap solution in water.

- Bubbles of soap solution become bigger due to the reduced surface tension of the solution.
- Drops of liquid are spherical due to surface tension.
- On adding kerosene to water, the surface tension of water reduces, due to which mosquito eggs etc. floating on the surface of water sink.
- It is due to adhesive force that water soaks any object and mercury does not stick to glass etc.

Capillarity

The phenomenon of liquid rising or falling in a capillary tube is called **capillarity**.

Examples of Capillarity

- Absorption of water in porous materials like paper and plaster
- Absorption of paint in the bristles of a paintbrush
- Water rising up in plants and trees through their roots
- Oil rising up in the wick of a lantern/lamp
- Coffee powder dissolves very quickly in water
- Blotting paper absorbs ink quickly.

Flow of liquids

- The flow of a liquid in which every particle of the liquid follows the path of the particle in front of it (i.e. unchanging flow) is called stream lined flow and this path is called **stream line**.
- If the fluid particles passing through a point in the flow of a fluid take different paths, then this flow of fluid is called **turbulent flow**.

Viscosity

- It is the property of a fluid due to which it opposes the relative motion in its different layers, i.e. the internal friction in a fluid is called viscosity.
- With increase in temperature, the viscosity of liquids decreases, but that of gases increases.
- Viscosity is a property of liquids and gases only.
- Viscosity in gases is much less than that of liquids. There is no viscosity in solids.

Bernoulli Theorem

- When an ideal fluid flows in a linear stream in a pipe, then the sum of the total energy (pressure energy, kinetic energy and potential energy) of its unit volume remains constant at every point of its path.

$$p + \frac{1}{2}\rho v^2 + \rho gh = \text{constant}$$

- Bernoulli theorem works on the principle of energy conservation.
- Venturimeter, Bunsen burner, carbon filter pump, Magnus effect and the motion of an airplane are based on Bernoulli's theorem.

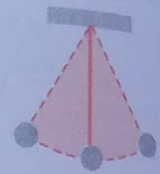
Simple Harmonic Motion

- **Periodic Motion** when an object moving on a fixed path repeats its previous motion again and again after a fixed time interval, then its motion is called periodic motion.
- Periodic period is the time taken to complete one oscillation.
- **Frequency** the time taken by the vibrating object in one second is called frequency.

- The SI unit of frequency is **Hertz**.
- If the frequency is n and the period is T , then $n = \frac{1}{T}$

Simple Pendulum

- The maximum time period of the pendulum is **84.5 min**.
- The pendulum clock is slow in summer and fast in winter.
- If a simple pendulum is hung in a lift and the lift moves at a high speed, then if the lift is moving downwards, then the time period of the pendulum will increase and if the lift is going upwards, then the time period of the pendulum will decrease.
- If the lift is falling freely under gravity, then the time period of the pendulum will become infinite.
- If the pendulum clock is taken to the moon, its time period will increase, because the value of g is $1/6$ times of the value of g on the earth.



Wave

It is a disturbance through which energy is transmitted from one place to another.

Waves are generally of two types

1. **Mechanical waves** (longitudinal wave and transverse wave)
 - **Longitudinal wave** When the direction of wave motion is along (or parallel) with the direction of vibration of the particles of the medium, then such a wave is called a longitudinal wave. Sound waves are examples of longitudinal waves.
 - **Transverse wave** When the direction of wave motion is perpendicular to the direction of vibration of the particles of the medium, then such waves are called transverse waves. Waves produced on the surface of water, light waves are transverse waves.
2. **Non-mechanical (electromagnetic) waves** These are such waves which do

not require any medium for their transmission.

- Light, heat are examples of electromagnetic waves.
- These waves travel at the speed of light.
- All electromagnetic waves are made up of photons.

Cathode rays, canal rays, α , β -rays, sound waves and ultrasonic waves are not electromagnetic waves.

Major Electromagnetic Waves

Wave	Discoverer	Utilization
γ -rays	H. Becquerel	Maximum penetrating power; used in nuclear reactions and artificial radioactivity.
UV-rays	Johann Wilhelm Ritter	Produces electric discharge, photoelectric effects, and destroys bacteria.
X-rays	Roentgen	Used in surgical diagnosis and industrial applications.
Visible Radiation	Newton	Makes objects visible and distinctive through illumination.
Infrared Radiation	Herschel	Thermal radiation; raises the temperature of objects it interacts with.
Microwaves	Heinrich Hertz	Utilized in radio, TV, telephone, and similar communication technologies.
Radio Waves	Marconi	Used in radio broadcasting, TV, and long-distance communication.

Sound Waves

- It is a form of energy that produces sensation in our ears.
- Sound waves are **longitudinal mechanical waves**.
- Sound travels from one place to another in the form of waves.

- There are mainly three frequency ranges of sound waves

Types of Sound Waves

- 1 **Infrasonic waves** Sound waves with a frequency less than 20 Hz are called infrasonic waves. These cannot be heard. These waves can be heard by whales.
- 2 **Audible waves** waves with a frequency between 20 Hz to 20000 Hz are called audible waves. These waves can be heard by our ears.
- 3 **Ultrasonic waves** Waves above 20000 Hz are called ultrasonic waves. Human ears cannot hear them, but cats, dogs, mosquitoes can hear these waves. Bats can also produce these waves.

Uses of Ultrasonic Waves

- In sending signals.
- In finding the depth of the sea
- In cleaning precious clothes, parts of aeroplanes and watches
- In removing soot from the chimneys of factories
- In destroying harmful bacteria in milk
- Bats flying in the dark
- In treating arthritis and finding brain tumours.

Sonar is a method by which objects submerged in the sea are detected. Ultrasonic waves are used for this.



Speed of Sound

- The speed of sound in a medium mainly depends on the **elasticity** and **density** of the medium.
- The speed of sound is highest in solids, and lowest in gases.
- The speed of sound increases when the temperature of the medium and the density increases.
- The speed of sound in air is **332 m/s**, the speed of sound in **water** is **1483 m/s**, the speed of sound in **mercury** is **1450 m/s**, the speed of sound in iron is 5130 m/s etc.

- When sound goes from one medium to another, the **speed and wavelength** of sound change, but the frequency does not change.

Echo

- The reflected sound that returns after hitting a reflecting object such as a building or a hill is called an **echo**.
- To hear an echo, there should be at least 0.1 second of time between the original sound and the reflected sound.
- To hear an echo, the distance between the listener and the reflecting surface should be at least **17 m**.

Heat

- It is an energy, due to which we feel the heat of an object.
- Its SI units are **calorie, kilocalorie and joule**.
- 1 calorie = 4.186 joule.

Temperature

- Temperature is the measure of the hotness and coldness of an object.
- When two objects are in contact, the flow of heat always occurs from the object with higher temperature to the object with lower temperature.

Temperature Measurement

- Celsius scale** In this scale, freezing point is marked as 0°C and steam point is marked as 100°C.
- Fahrenheit scale** Its freezing point is 32°F and steam point is 212°F
- Rømer scale** its freezing point is 0°R and steam point is 80°R.
- Kelvin scale** its freezing point is 273.15K and steam point is 373K.

$$\frac{C - 0}{100} = \frac{F - 32}{180} = \frac{R - 0}{80} = \frac{K - 273}{100}$$

- Mercury Thermometer** was invented by Fahrenheit in 1593.
- The temperature of any object cannot be less than -273.15°C. This is called **absolute zero temperature**.

- It is written OK (zero Kelvin) on Kelvin scale i.e. 0k = -273.15°C and 273.15 K = 0°C

Specific Heat

- The amount of heat required to increase the temperature of a unit mass of a substance by 1°C is called the specific heat of the substance.

$$S = \frac{Q}{m\Delta T}$$

Q = heat, m = mass, ΔT = temperature difference

- Its SI unit is joule/kg Kelvin or calorie/gram°C. Water has the highest specific heat.
- The specific heat of most substances increases with increase in temperature.
- The specific heat of water is 4.184 joule/kg-Kelvin at 15°C.
- The specific heat of gold is **130 joule/kg-Kelvin**.

Examples of Specific Heat

- Cooking utensils are made of aluminium, bronze and steel because these materials have low specific heat and high conductivity.
- Thermos flasks are made of double glass walls due to which there is almost no transfer of heat and the hot object kept in them remains hot and cold object remains cold.
- If very hot water is poured into a glass tumbler, it breaks because the inner surface expands due to heating.
- Water from a hand pump feels hot in winters and cold in summers.

Change of State

- The change of a substance from one state to another is called phase change.
- Melting Point** The conversion of a solid into a liquid at a certain temperature is called melting and this fixed temperature is called the melting point of the solid.
- By adding some salt, soda to the melting ice at 0°C, the melting point of ice decreases

from 0°C to 22°C, such ice mixture is used in making Kulfi, ice cream etc.

- **Boiling Point** The conversion of a liquid into vapor at a certain temperature is called evaporation and this fixed temperature is called the boiling point of the liquid.

- **Freezing Point** The conversion of a liquid into a solid at a certain temperature is called freezing and this fixed temperature is called the freezing point of the liquid.

Effect of Pressure on Melting Point and Boiling Point

- The melting point of a substance increases when the pressure increases: e.g. wax, ghee etc.
- The substances whose volume decreases on heating, their melting point decreases on increasing pressure; e.g. ice, bismuth, cast iron etc.
- The boiling point of a liquid is low when the pressure is low and high when the pressure increases.

Latent Heat

- The amount of heat required to change the state of a substance at a constant temperature is called the latent heat of the substance.
- The latent heat of melting of ice is **80 J/Kg**.
- The latent heat of vaporization is **540 J/Kg**.
- Burns caused by steam are more than those caused by boiling water, because the latent heat of steam is more than that of water.
- Ice at 0°C feels colder than water at 0°C.

Thermal Transmission

- The process of heat moving from one place to another is called **transmission of heat**.

- Transmission of heat in **solids-conduction**
- Transmission of heat in gases and liquids - **convection**
- The atmosphere is heated only through - **convection**
- Heat from the sun reaches the earth through - **radiation**

Light

- Light is a type of energy that is transmitted in the form of electromagnetic waves. It is a transverse wave. Its wavelength is between 3900 Å to 7800 Å.
- The velocity of light was first calculated by **Ole Romer**.
- The speed of light is highest in air and vacuum (3×10^8 m/s).
- Sunlight reaches the earth in **8 minutes 19 seconds**.

Reflection of Light

- The phenomenon of light coming back after hitting a smooth surface is called **reflection of light**.
- The incident ray, the normal at the point of incidence and the reflected ray are in the same plane.
- The angle of incidence is always equal to the angle of reflection.
- The best reflector of light is silver.

Reflection from a Plane Mirror

- The image is equal to the imaginary object and the side is inverted.
- If a person walks towards the mirror at a speed v , then he will see his image in the mirror moving towards him at a speed $2v$.
- To see the full image of an object in a plane mirror, the **length of the mirror** should be **half the length of the object**.

- Number of images formed by plane mirrors inclined at an angle, $n = \left(\frac{360^\circ}{\theta} - 1 \right)$

- We can see ourselves in the mirror **because light** reflects from the mirror.

Type of Spherical Mirror	
1	2
Concave Mirror	Convex Mirror
The image is bigger and real.	The image is smaller, straight and virtual.
Uses	Uses
▶ In shaving ▶ By eye, ear, and nose doctors ▶ In car headlights ▶ In solar cookers	▶ To see the rear view near the driver's seat in a car ▶ In sodium reflector lamps

Refraction of Light

- When a ray of light goes from one medium to another, it deviates from its path. This phenomenon is called **refraction** of light.
- When a ray of light goes from one medium to another, its frequency remains unchanged, while the **wavelength** and **velocity change**.
- Examples of refraction of light are
 1. An object lying inside water appears slightly above its actual depth.
 2. It is due to refraction in the Earth's atmosphere that we see **stars twinkling**.

Critical Angle of Light and Total Internal Reflection

- ▣ The angle of incidence in a denser medium for which the corresponding angle of refraction in a rarer medium is 90° is called **critical angle**.
- ▣ Total internal reflection of light occurs when a ray of light goes from a denser medium to a rarer medium and its angle of incidence is more than the critical angle. In this situation, the entire light gets reflected and returns to the same medium.
- ▣ e.g., Shining of diamond, formation of mirage in the desert, shining of a test tube placed in water, etc.

Dispersion of Light

- The splitting of a white light ray into light rays of its non-independent colours is called dispersion of light.
- There are seven colours of light violet, purple, blue, green, yellow, orange and red.

- This order of colours is remembered as the English word **VIBGYOR**.
- The deviation in a ray of red light is the least and the deviation in a ray of violet light is the most.
- Rainbow is visible in the rainy season, which is an example of **Dispersion of Light**.

Scattering of Light

The uneven spreading of light in all directions by a medium containing very fine particles of dust and other substances is called scattering of light.

- The blue colour of the sky is visible due to scattering.
- The **wavelength** of red colour is more, due to which its scattering is less and it is visible from a distance.

Lens

- There are two types of lenses
 - (i) **Convex Lens** These lenses are thick in the middle and thin at the edges.
 - (ii) **Concave Lens** These lenses are thin in the middle and thick at the edges.
- When the lens is immersed in a liquid having higher refractive index, its focal length increases and the convex lens acts like a concave lens and the concave lens acts like a convex lens.
- An air bubble acts like a concave lens in a liquid.
- The unit of power of a lens is **Diopter**. The power of a convex lens is positive and the power of a concave lens is negative.

Human Eye

- It is a special type of optical instrument. Its lens is made of a transparent substance made of protein.
- An inverted and real image of the object is formed on the retina of the eye.
- The minimum distance for clear vision is **25 cm**.

Eye Defects

Myopia

A person can see nearby objects but cannot see distant objects. Corrected using a concave lens.

Hypermetropia

A person cannot see nearby objects. Corrected using a convex lens.

Presbyopia

A person cannot see both distant and near objects clearly. Corrected using a bifocal lens.

Astigmatism

The eye can see well in one direction (horizontal or vertical) but not in the perpendicular direction. Corrected using a cylindrical lens.

Static Electricity

Electric Charge

- It is the property due to which an object exerts electric force on other objects.
- The amount of charge that accumulates on the substances by rubbing them together or by friction is called **static electricity**, in which the charge remains stable.
- Benjamin Franklin** named two types of charges as **positive charge** and **negative charge**.
- Charges of the same type repel each other and charges of the opposite type attract each other.
- The electric field inside a hollow conductor is zero.

Conductor The substances through which charge flows easily are called conductors, such as silver, copper, aluminum, etc.

Non-conductor The substances through which charge does not flow are called non-conductors; e.g., wood, rubber, paper, etc.

Semi-conductors Those materials whose electrical conductivity lies between conductors and insulators are called semi-conductors, e.g., silicon, germanium etc.

Electric Current

It is the rate of flow of electric charge in a conductor. Its SI unit is **ampere**.

Ohm's law

- At constant temperature, the potential difference applied across the ends of a conductor is directly proportional to the current flowing through it.

$$I = \frac{V}{R} \text{ (where, } R \text{ is the resistance)}$$

- Semiconductors do not obey Ohm's law.
- The unit of electrical resistance is **ohm** (Ω).
- The reciprocal of the resistance of a conductor is called the electrical conductivity of the conductor. Its unit is $(\text{ohm})^{-1}$ or mho meter (σ).
- Ammeter** An instrument called ammeter is used to measure electric current in amperes. It is always connected in series in the circuit. The resistance of an ideal ammeter is zero.
- Voltmeter** is used to measure potential difference. It is always connected in parallel in the circuit. The resistance of an ideal voltmeter is infinite.
- Electric fuse** is used to protect the equipment installed in the circuit. It is made of an alloy of copper, tin and lead.
- Its melting point is low. It is always connected in series. Electric potential is measured in horsepower.
- All the components in a domestic circuit are connected in parallel.

- The filament of the bulb is made of **tungsten** which has a high melting point (3500°C).
- Lightning conductors are installed on the top of buildings to protect tall buildings from the effects of lightning.

- A transformer is an electrical device that allows us to increase or decrease the voltage in an **alternating current** (AC) electrical circuit, thereby maintaining the electric current.

Magnet

- A magnet is a piece of iron and other materials, which attracts iron materials towards itself and stays in the **north** and **south direction** when hung freely.
- When a magnet is hung freely in the horizontal plane, one of its poles always stays towards the north and the other always stays towards the south.
- The pole that stays towards the north is called the **north pole** and the pole that stays towards the south is called the **south pole**.



- There is repulsion between similar poles and attraction between dissimilar poles.
- Natural magnet is iron oxide magnetite (Fe_3O_4).

Types of Magnetic Material

Type	Examples
Diamagnetic Materials	Zinc, bismuth, copper, silver, gold, diamond, salt, water
Paramagnetic Materials	Platinum, chromium, sodium, aluminium, oxygen
Ferromagnetic Materials	Iron, nickel, cobalt, iron-steel

Important Inventions and Their Inventors

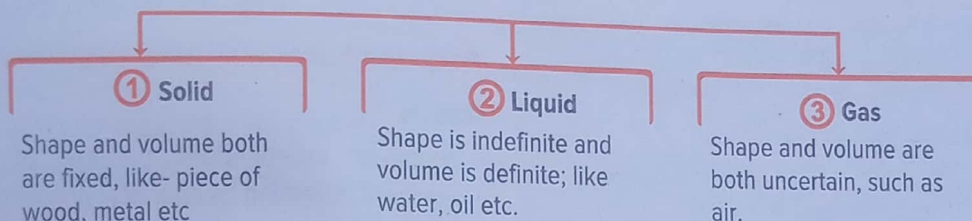
Invention	Inventor	Year
Telephone	Alexander Graham Bell	1876
Electric Bulb	Thomas Alva Edison	1879
Radio	Guglielmo Marconi	1895
Airplane	Wright Brothers	1903
Printing Press	Johannes Gutenberg	1440
Steam Engine	James Watt	1765
Dynamite	Alfred Nobel	1867
X-rays	Wilhelm Rontgen	1895
Television	John Logie Baird	1927
Theory of Relativity	Albert Einstein	1905
Atomic Bomb	J. Robert Oppenheimer	1945
Laser	Theodore H. Maiman	1960
Gramophone	Thomas Alva Edison	1877
Helicopter	Igor Sikorsky	1939
Steam Locomotive	George Stephenson	1814
Microscope	Zacharias Janssen	1590
Barometer	Evangelista Torricelli	1643
Stethoscope	René Laennec	1816
Electric Battery	Alessandro Volta	1800
Electroscope	William Gilbert	1600s
Electromagnet	William Sturgeon	1824
Pacemaker	Rune Elmqvist	1928
Rocket Engine	Robert H. Goddard	1926
Refrigerator	William Cullen	1748

Chemistry

Definition Study of composition, structure, properties, changes and energy transformations of elements and compounds.

Matter and its Nature

Matter is a thing that occupies space, has mass and resists change; e.g, chair, table, wood, water, etc. On the basis of its physical form, matter can be in solid, liquid or gaseous state.



Two Other States of Matter

The two other states of matter are found only under extreme conditions of temperature and pressure.

Plasma Made up of highly energetic and highly excited particles.

- The particles are in the form of ionised gas.
- Fluorescent tubes and neon bulbs contain plasma.

Formation of Plasma When electricity ionises the gas inside, creates a bright plasma.

Bose-Einstein Condensate

- A state of matter formed by cooling a gas to extremely low temperatures, named after Satyendranath Bose and Albert Einstein.

Physical and Chemical Changes

- **Physical Changes** Temporary in nature, affects physical properties (colour, hardness, density, melting point) but not composition.
e.g : crystallisation, sublimation, boiling, melting, vaporisation, cutting trees, dissolving sugar/salt.
- **Chemical Changes** Permanent in nature, affects composition and chemical properties, forming a new substance.
e.g burning fuel, burning candle/paper, electrolysis of water, photosynthesis, ripening fruits.

Mole and Avogadro's Number

One Mole The amount of a substance with a weight equal to its formula weight in grams.

Avogadro's Number 6.022×10^{23}
particles (atoms, ions, molecules, etc.)
= number of atoms in 12g of carbon-12, denoted as N_1 or N .

Acid and Base

Acids

- Turn blue litmus red
- Donate protons in aqueous solution
- Typically sour in taste

Bases

- Turn red litmus blue.
- Accept protons (H^+)
- Taste is generally bad astringent (bitter).

Some Natural Acids

Acid	Natural Source
Acetic acid	Vinegar
Citric acid	Orange, lemon
Tartaric acid	Tamarind
Lactic acid	Milk
Oxalic acid	Tomato, Spinach
Methanoic acid	Ant sting
Butyric acid	Rancid butter

pH value

pH is a measure of acidity/basicity.

- Gastric juice pH-1.0-3.0
- Urine (human) pH-6
- Saliva (human) pH 6.5-7.5
- Tears and human blood pH - 7.4
- Milk (cow) pH-6.3-6.6
- Sea water pH - 8.5

Colloid Solution

- Heterogeneous solution with two phases: dispersed phase (solute) and dispersion phase (solvent)
- It shows **Tyndall effect** (scattering of light), Brownian motion (zig-zag motion)

Types

- **Lyophilic** (attracted to solvent, stable, reversible)
- **Lyophobic** (not attracted to solvent)

Applications

- **Dialysis** (purifying colloids, e.g., blood purification)
- **Water Purification** (Alum coagulates impurities)

Types of Colloid and its Example

Type	Dispersed Phase	Dispersion Medium	Example
Aerosol	Liquid	Gas	Fog, clouds, mist
Aerosol (solid)	Solid	Gas	Smoke, automobile exhaust
Foam	Gas	Liquid	Foam, rubber, sponge, pumice
Foam	Gas	Liquid	Shaving cream

Type	Dispersed Phase	Dispersion Medium	Example
Emulsion	Liquid	Liquid	Milk, face cream
Gel	Liquid	Solid	Jelly, cheese, butter
Solid sol	Solid	Solid	Milky glass, coloured gem stone
Sol	Solid	Liquid	Mud, milk of magnesia

Atom, Molecule and Element

Atom

- Smallest independent particle of an element, retaining its chemical properties.
- Composed of electrons, protons, and neutrons.
- Protons and neutrons in the nucleus, electrons revolve around.
- Atom first conceptualized by **John Dalton** (1808).

Molecule

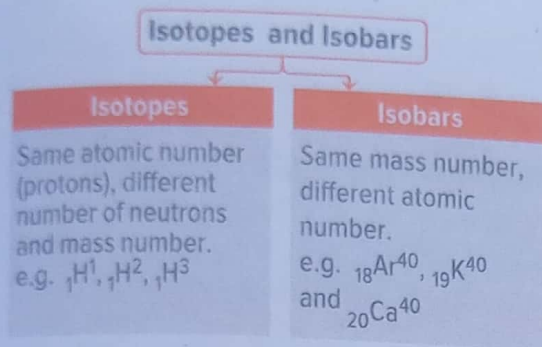
- Smallest part of an element or compound capable of independent existence.

Element

- Contains only one type of atoms.
- **Examples** Carbon (C), sulphur (S), diamond, graphite.
- **Recent Elements** Oganesson (Og, atomic number 118), Ununseptium (atomic number 117, group-17)

Fundamental Particles of Matter

Particle	Mass (kg)	Charge	Discoverer
Proton	1.6726×10^{-27}	$+1.6 \times 10^{-19}$	Ernest Rutherford
Electron	9.108×10^{-31}	-1.6×10^{-19}	JJ Thomson
Neutron	1.675×10^{-27}	0	Chadwick
Positron	1.108×10^{-31}	1.6×10^{-19}	Anderson
Neutrino	0	0	Pauli
Pi meson	274 times the electron	Both positive and negative	Yukawa Hideki
Photon	0	0	Einstein



Quantum Numbers

Four numbers describe state of electron

- Principal Quantum Number (n)**: Energy level and distance from nucleus.
Positive integer (1, 2, 3, ...)
- Azimuthal Quantum Number (l)**: Angular momentum and orbital shape.
Integer from 0 to $n-1$ (e.g., 0=s, 1=p)
- Magnetic Quantum Number (m_l)**: Spin and orbital orientation. Integer from $-l$ to l
- Spin Quantum Number (m_s)**: Intrinsic spin $+1/2$ or $-1/2$ (up or down).

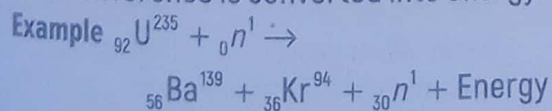
Uses of Radioisotopes

Iodine-131	Brain imaging
Iodine-123	Goiter/Thyroid treatment
Cobalt-60	Blood cancer treatment
Sodium-24	Detecting blood clots
Phosphorus-32	Leukemia treatment

Nuclear Reactions

Nuclear Fission

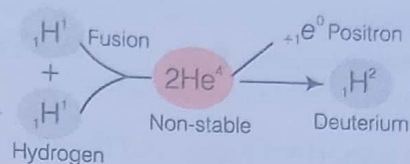
- Heavy nucleus breaks into smaller nuclei, releasing heat and neutrons.
- Used in atomic bombs (uncontrolled chain reaction).
- Lighter nuclei (e.g., hydrogen) combine.
- Resulting nucleus has less mass than original nuclei.
- Mass difference is converted into energy.



Nuclear Fusion

- Light nuclei combine to form a heavy nucleus, releasing energy.

- Requires high temperature ($>10^8$ K)
- Used in hydrogen bombs and solar energy.



Dating Methods

- Carbon Dating**: Measures age of carbon-containing substances using radioactive C-14 decay.
- Uranium Dating**: Measures age of earth, minerals and rocks.

Corrosion

- Destruction of metals due to air and moisture exposure.
- Chemical process, e.g., iron corrodes to form hydrated ferric oxide ($\text{Fe}_2\text{O}_3 \cdot x\text{H}_2\text{O}$).
- Silver turns black due to Ag_2S formation; copper turns green due to $\text{Cu}(\text{OH})_2$ and CuCO_3 formation.

Prevention Methods

- Electroplating (process using electric current to coat a material with a thin metal layer).
- Coating with oil, grease, paint, or varnish.
- Galvanization (zinc layer on iron).

1 Renewable Unlimited, non-exhaustible (e.g., air, sunlight)

Energy Sources

2 Non-renewable Limited, exhaustible (e.g., minerals, coal, petroleum)

Fuels and Combustion

- Fuels**: Substances producing heat and light on combustion.
- LPG**: Odourless, has ethyl mercaptan ($\text{C}_2\text{H}_5\text{SH}$) added to detect leaks.
- Calorific Value**: Heat obtained from burning 1g of fuel in excess oxygen.

Safety Measures

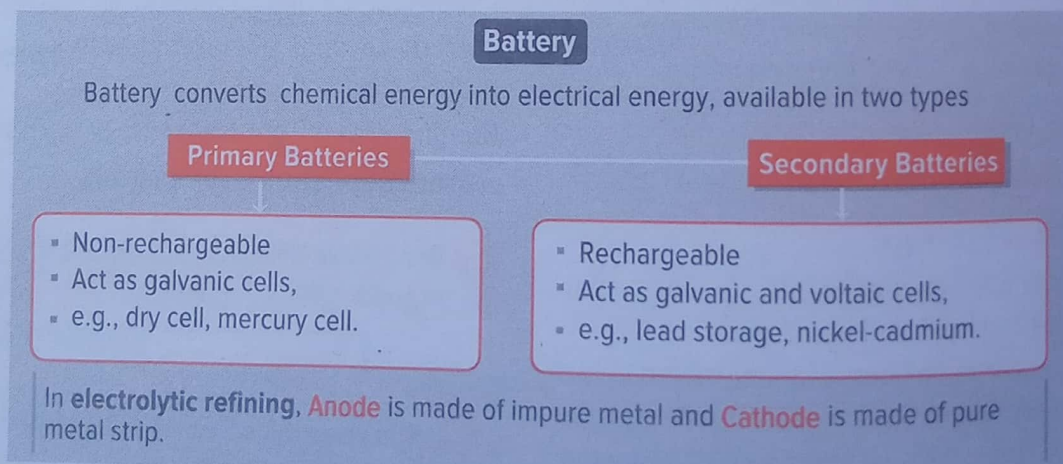
- Vehicles carrying inflammable substances have earthing rods to prevent lightning ignition.
- **Rocket Propellants** Fuels used in rockets, commonly a mixture of liquid hydrogen and oxygen.

Some Important Fuels and their Compositions

Fuel	Composition	Sources
Water Gas	Carbon monoxide (CO) + Hydrogen (H ₂)	By passing steam over red hot coke
Producer Gas	Nitrogen (N ₂) + Carbon monoxide (CO) (2 : 1 ratio)	By passing insufficient air over red hot coke
Coal Gas	Hydrogen + Methane + Ethylene (C ₂ H ₄) + Acetylene (C ₂ H ₂) + CO + Nitrogen	By fractional distillation of wood
Natural Gas	Methane (83%) + Ethane (16%)	From petroleum
Liquefied Petroleum Gas (LPG)	Butane (C ₄ H ₁₀) + Propane (C ₃ H ₈)	From oil wells
Compressed Natural Gas (CNG)	Methane (CH ₄) (90–98%)	From petroleum
Biogas or Gobar Gas	Methane (CH ₄) + Carbon dioxide (CO ₂) + Hydrogen (H ₂) + Nitrogen (N ₂)	From organic wastes

Coal

- Coal is formed by carbonisation of vegetable matter and comes in various forms:
- **Anthracite Coal** 90% Carbon
- **Lignite** (Brown Coal): 70% Carbon
- **Peat** 60% Carbon
- **Bituminous Coal** 60-80% Carbon (most common form)



Types of Batteries

Battery	Anode	Cathode	Electrolyte	Used in
Leclanche cell	Zinc	Graphite	Paste of ammonium chloride and zinc chloride	Transistors, clocks
Mercury cell	Zinc-mercury amalgam	Paste of HgO (Mercuric oxide) and carbon	Paste of KOH and ZnO	Hearing aids and camera
Lead storage battery	Lead	Lead packed in lead dioxide	38% solution of sulphuric acid	Automobiles, invertors

Carbon and Its Compounds

- **Carbon** Non-metal with allotropes diamond and graphite.
- **Diamond** Pure carbon, used for cutting glass, rocks, and marble.
- **Graphite** Soft, dark grey substance used as lubricant, in compasses, electrodes, and pencils.

Man-made Substances

- **Soap** Sodium/potassium salts of higher fatty acids, made by saponification.
- **Characteristics** Low moisture, no free alkali, insoluble in alcohol.
- **Glass** Supercooled liquid, amorphous solid, mainly composed of silica (SiO_2).

Coloured Glass

Colour	Material Used
Red	Copper oxide (Cu_2O)
Green	Ferrous sodium chromate oxide ($\text{FeO} \cdot \text{Cr}_2\text{O}_3$)
Ruby Red	Gold chloride (AuCl_3)
Blue	Cobalt oxide (CoO)
Brown	Ferric oxide (Fe_2O_3)

Types and Uses of Glass

Type	Uses
Soda Glass	Window panes, bottles, tube lights, utensils
Potash Glass (Hard Glass)	Boxes, test tubes, heat-resistant equipment
Photochromatic Glass	Sunscreen glasses
Pyrex Glass (Borosilicate Glass)	Laboratory equipment
Smooth Glass	Artistic objects, instruments, bulbs, optical equipment
Zhaun Glass	Optical equipment, spectacle lenses
Jena Glass	Laboratory bottles for acids and alkalis

Explosives

Substances releasing excessive heat, energy and sound on burning.

e.g.,

- **RDX** (Cyclotrimethylene Trinitramine) Discovered by Georg Friedrich Henning in 1898.
- **TNG** (Trinitroglycerine, Nobel's oil)
- **TNT** (Trinitrotoluene)
- **TNP** (Trinitrophenol, Picric Acid)

Hard Water

- **Temporary Hard Water** Contains calcium and magnesium bicarbonates. Removed by adding Na_2CO_3 .
- **Permanent Hard Water** Contains soluble chlorides and sulphates of calcium and magnesium. Removed by adding Na_2CO_3 .
- Soap doesn't form lather due to insoluble sulphates, chlorides, and bicarbonates.

Heavy Water

- Oxide of deuterium (heavy hydrogen).
- Molecular weight : 20
- Used as coolant and controller in nuclear reactors.

Important Facts

- **Barium Sulphate** Used in X-ray of abdomen
- **Fireworks Colours**: Green Barium presence
- **Red** Strontium presence
- **Onion and Garlic Smell** Due to sulphur presence
- **Other Facts**
 - Iron Pyrite (FeS_2): Called 'false gold' or 'fool's gold'
 - Zinc Oxide: Also called 'Yashad Pushp'
 - Zinc Phosphide: Used as rat poison

Some Important Polymers

Polymer	Monomer
Polyethylene	Ethylene
Polystyrene	Styrene
Polyvinyl chloride (PVC)	Vinyl chloride
Polytetrafluoro ethylene (PTFE) or teflon	Tetrafluoro ethene
Bakelite	Formaldehyde+Phenol
Urea formaldehyde resin	Urea + Formaldehyde
Melmac	Melamine + Formaldehyde

Medicines

Medicines are chemicals used for treating diseases and reducing suffering from pain.

Different Medicines and their Examples

Medicine	Used to	Example
Analgesics	Reduce pain	Aspirin, paracetamol, morphine, phenacetin
Tranquilizers	To treat stress, mild and severe mental diseases	Equanil, valium, chlorodiazepoxide, serotonin and meprobamate
Antiseptic	Prevent the growth of microorganisms or kill them (applied to living tissues)	Dettol (a mixture of chloroxylenol—the antiseptic and α -terpineol), savlon, iodine tincture (solution of I_2 in alcohol water mixture), boric acid (antiseptic for eyes), hydrogen peroxide, iodoform
Antibiotic	Destroy microorganisms (These are obtained from microorganisms.)	Penicillin (discovered by A Fleming in 1929, ampicillin, amoxicillin, ofloxacin, chloramphenicol)
Antimalarial	Cure malaria	Chloroquine
Sulphadruugs	Alternative for antibiotics	Sulphanilamide, sulphadiazine
Antacids	Reduce acidity	Baking soda, magnesium hydroxide

Metal Alloys, Composition and its Uses

Alloy	Composition	Uses
Brass	Cu 70% + Zn 30%	Utensils
Bell Metal	Cu 80 % + Sn 20%	Bells
Constantan	Cu 60% + Ni 40%	Resistance boxes, thermocouples
Gun Metal	Cu 88% + Sn 10% + Zn 2%	Guns, gears
Coinage	Cu 75% + Ni 25%	Coins
Phosphorus Bronze	Cu 85% + Sn 13% + P 2%	Springs
Rolled Gold	Cu 95% + Al 5 %	Imitation jewellery
German Silver	Cu 60% + Zn 20% + Ni 20%	Tableware, jewellery
Delta Metal	Cu 55% + Zn 41% + Fe 4%	In building ship
Dutch Metal	Cu 85% + Zn 15%	In making fake jewellery
Magnalium	Al 98% + Mg 2 %	In making weighing machine
Invar	Fe 63% + Ni 20% + Al 12% + Co 5%	Measuring instruments, clock pendulums
Ferro Vanadium	FeV 30%+C 3.2 % +P 0.25 % + S 0.4% +Si 13 % +Al 1.5 %	In making springs
Alinco	Fe 63% +Ni 20% +Al 12 % +Co 5 %	Permanent magnets

Some Important Industrial Compounds

Industrial Name	Chemical Name	Chemical Formula
Alum	Potassium aluminium sulphate	$KAl(SO_4)_2 \cdot 12H_2O$
Alcohol	Ethyl alcohol	C_2H_5OH
Baking Soda	Sodium bicarbonate	$NaHCO_3$
Bleaching powder	Calcium oxychloride or calcium hypochlorite	$CaOCl_2$
Brine (or common salt)	Sodium chloride	$NaCl$
Borax	Sodium tetraborate decahydrate	$Na_2B_4O_7 \cdot 10H_2O$
Caustic potash	Potassium hydroxide	KOH
Caustic soda	Sodium hydroxide	$NaOH$
Chalk (marble) or pearl	Calcium carbonate	$CaCO_3$
Chilli salt petre	Sodium nitrate	$NaNO_3$
Chloroform	Trichloro methane	$CHCl_3$
Epsom salt	Magnesium sulphate	$MgSO_4 \cdot 7H_2O$
Glauber's salt	Sodium sulphate decahydrate	$Na_2SO_4 \cdot 10H_2O$
Gypsum	Calcium sulphate dihydrate	$CaSO_4 \cdot 2H_2O$
Hypo	Sodium thiosulphate pentahydrate	$Na_2S_2O_3 \cdot 5H_2O$
Laughing gas	Nitrous oxide	N_2O
Lunar caustic	Silver nitrate	$AgNO_3$
Marsh gas	Methane	CH_4
Quick lime	Calcium oxide	CaO
Sal ammonia (Nausadar)	Ammonium chloride	NH_4Cl
Sapphire (Ruby)	Aluminium oxide	Al_2O_3
Slaked lime	Calcium hydroxide	$Ca(OH)_2$
Soda ash	Sodium carbonate	Na_2CO_3
Spirit	Methyl alcohol	CH_3OH
Washing soda	Sodium carbonate decahydrate	$Na_2CO_3 \cdot 10H_2O$
Blue Vitrol	Copper Sulphate	$CuSO_4$
Green Vitrol	Ferrous Sulphate	$FeSO_4$
White Vitrol	Zinc Sulphate	$ZnSO_4$
Phenol	Carbolic Acid	C_6H_5O
Freon	Dichlorodifluoro Methane	CF_2Cl_2

Biology

- Biology is the study of living beings.
- The term coined by **Lamarck** and **Treviranus** in 1802.

Fathers of Different Branches of Biology

Branch	Father
Bioscience/Zoology	Aristotle
Botany	Theophrastus
Immunology	Edward Jenner
Genetics	Gregor John Mendel
Cytology	Robert Hooke
Plant-physiology	Stephen Hales
Medical science	Hippocrates
Mycology	Heinrich Anton de Bary
Bacteriology	Louis Pasteur
Microbiology	Leeuwenhoek
Modern embryology	Von Baer
Taxonomy or classification	Carolus Linnaeus
Algology	FE Frisch
Indian Algology	OP Iyengar

Living World

- **Taxonomy** Branch of biology that deals with the classification of organisms.
- **RH Whittaker** (1969) classified all organisms into five kingdoms- Monera (bacteria, *Mycoplasma*), Protista (protozoa), Fungi (fungi), Plantae (algae, bryophytes, pteridophytes, gymnosperms and angiosperms) and Animalia (invertebrates and vertebrates).
- **Viruses** minute, parasitic nucleo-protein particles active only inside living cells, discovered by Ivanowaski in 1892.
- **Bacteria** microscopic, unicellular, omnipresent prokaryotes, named by Ehrenberg in 1829.
- **Carolus Linnaeus** introduced the binomial nomenclature system, where every organism has a genus and species name.

Some Important Scientific Names

Name	Scientific name
Man	<i>Homo sapiens</i>
Frog	<i>Rana tigrina</i>
Cat	<i>Felis domestica</i>
Dog	<i>Canis familiaris</i>
Cow	<i>Bos indicus</i>
Housefly	<i>Musca domestica</i>
Mustard	<i>Brassica campestris</i>
Pea	<i>Pisum sativum</i>
Wheat	<i>Triticum aestivum</i>
Rice	<i>Oryza sativa</i>
Mango	<i>Mangifera indica</i>
Gram	<i>Cicer arietinum</i>

Discoveries Related to Cell

Discovery	Year	Scientist
Nucleolus	1781	Fontana
Nucleus	1831	Robert Brown
Named protoplasm	1839	Purkinje
Discovered mitotic cell division	1877	Walther W Fleming
Division of chromosomes and coined the term Chromatin	1879	Walther W Fleming
Mitochondria	1880	Kolliker
Golgi bodies	1879	Camillo Golgi
Named mitochondria	1897	Carl Benda
Double helix structure of DNA	1953	James Watson and Francis Crick

Human Body Systems

The human body is composed of

- cells (basic structural and functional units)
- tissues (groups of similar cells)
- organs (groups of tissues)
- organ systems (groups of organs), including: Digestive, Respiratory, Circulatory, Muscular, Skeletal, Reproductive, Nervous, Endocrine

Important Facts Related to Human Body

<i>Facts</i>	<i>Location/Quantity</i>	<i>Facts</i>	<i>Location/Quantity</i>
▶ Total number of bones	206	▶ Average amount of hemoglobin	13.16g/dl (male), 11.5-14 g/dl (female)
▶ Smallest bone	Stapes (middle ear)	▶ Number of White Blood Cells (WBCs)	5000-10000/cu mm
▶ Largest organ of human body	Skin	▶ Smallest WBC cell	Lymphocyte
▶ Longest bone	Femur (in thigh)	▶ Largest WBC cell	Monocytes
▶ Total number of vertebrae	33 (26 in adult)	▶ Lifespan of Red Blood Cells (RBCs)	120 days
▶ Total number of muscles	+639	▶ Lifespan of WBCs	2-5 days
▶ Longest muscle	Sartorius	▶ Time for blood to clot	3-8 minutes
▶ Weight of liver (in male)	1.4-1.8 kg	▶ Normal blood pressure	120/80 mm Hg
▶ Weight of liver (in female)	1.2-1.4 kg	▶ Heart rate in adult	72 times per minute
▶ Largest gland	Liver	▶ Largest artery	Aorta
▶ Highest regeneration capacity	Liver cell	▶ Weight of kidney	140 grams
▶ Lowest regeneration capacity	Brain cell	▶ Weight of brain	1400 grams
▶ Hardest part	Tooth enamel	▶ Length of spinal cord	42-45 cm
▶ Normal body temperature	98.4°F (37°C)	▶ Number of cranial nerves	12 pairs
▶ Amount of blood in the body	5.5 l	▶ Number of spinal nerves	31 pairs
		▶ Largest cell	Nerve cell (neuron)
		▶ Largest endocrine gland	Thyroid

Major Digestive Enzymes, their Sources and Functions

<i>Enzyme</i>	<i>Source</i>	<i>Substrate</i>	<i>Product substance</i>
Carbohydrate Digestion			
Ptyalin	Salivary gland	Starch	Disaccharide
Amylase	Pancreas	Starch	Disaccharide
Disaccharidase	Small intestine	Disaccharide	Monosaccharide
Protein Digestion			
Pepsin	Stomach	Protein	Peptide fragment
Trypsin	Pancreas	Proteins and polypeptides	Peptide fragment
Carboxypeptidase	Pancreas	Proteins and polypeptides	Peptide fragment
Amino peptidase	Intestinal mucosa	Peptide fragment	Amino acids
Fat Digestion			
Lipase	Pancreas	Triglyceride	Fatty acids, monoglycerides
Nucleic Acid Digestion			
Nuclease	Pancreas	DNA, RNA	Nucleotide
Nuclease	Intestinal mucosa	Nucleotide	Nucleotide bases and monosaccharides

Vitamins and their Deficiency

Carbohydrates, Vitamins, Protein, etc are major elements of Nutrition. Balance diets provide the Nutrients to body for being healthy. In human body, proportion of water is 70 to 80%.

Fat Soluble Vitamins

Vitamin A	Scientific Name <i>Retinol</i> Source Carrot, Tomato, Papaya, Mango, Milk, Egg and cod-liver oil Deficiency Disease Night blindness, xerophthalmia	Vitamin E	Scientific Name <i>Tocopherol</i> Source Wheat germ, green leafy vegetables, fats of vegetables Deficiency Disease Reproductive failure, muscular dystrophy, increased haemolysis leading to macrocytic anaemia.
Vitamin D	Scientific Name <i>Calciferol</i> Source Cod liver oil, skin can synthesise it in presence of sunlight Deficiency Disease Rickets in children and osteomalacia in adults.	Vitamin K	Scientific Name <i>Phylloquinone</i> Source Leafy vegetables, wheat germ, Synthesised by bacteria of large intestine. Deficiency Disease Faulty blood clotting

Water Soluble Vitamins

Vitamin B₁	Scientific Name <i>Thiamine</i> Source Whole grain wheat germ, legumes, nuts, fish, dry chillies, uncleaned pulses Deficiency Disease Beri-beri	Vitamin B₇(H)	Scientific Name <i>Biotin</i> Source Egg, yolk, milk, nuts, honey, liver, meat and fish Deficiency Disease Loss of muscular control, loss of appetite, hair fall
Vitamin B₂	Scientific Name <i>Riboflavin</i> Source Milk, cheese, meats, eggs, legumes, green leafy vegetables Deficiency Disease Cheilosis	Vitamin B₉	Scientific Name <i>Folic Acid</i> Source Green leafy vegetables Deficiency Disease Causes megaloblastic anaemia
Vitamin B₃	Scientific Name <i>Niacin</i> Source Whole grain nuts, legumes yeast, liver, fish, meat and poultry Deficiency Disease Pellagra, 4-D Syndrome	Vitamin B₁₂	Scientific Name <i>Cyanocobalamin</i> Source Spirulina (an alga), liver, meat, fish, eggs and milk Deficiency Disease Pernicious anaemia
Vitamin B₅	Scientific Name <i>Pantothenic acid</i> Source Yeast, milk, groundnut, liver, meat, wheat germ, honey, egg and yolk. Deficiency Disease Dermatitis, retarded growth, loss of hair, greying of hair.	Vitamin C	Scientific Name <i>Ascorbic acid</i> Source Citrus fruits, amla, guava and tomato Deficiency Disease Scurvy
Vitamin B₆	Scientific Name <i>Pyridoxine</i> Source Whole grain cereals, peanuts, banana, soyabean, meat and vegetables Deficiency Disease Dermatitis, Anaemia	Vitamin P	Scientific Name <i>Flavonoids</i> Source Citrus fruits and green vegetables Deficiency Disease Chronic Diseases

Circulatory System

- Open circulatory system - found in insects, spiders and crustaceans.
- Closed circulatory system - found in annelids, some molluscs and all vertebrates.

Human Heart

- Muscular, contractile, self-pumping organ.
- Myogenic: contraction initiated by Sino-atrial (SA) node, located in right atrium
- SA node-pace maker, regulates heartbeat
- Newborn heartbeat: 160-190 times/minute

Blood Composition

pH 7.4 (slightly alkaline)

Components Plasma and blood corpuscles

Plasma 90-92% water, 1-2% inorganic salts, 6-7% plasma proteins

Blood Cells

Red Blood Cells (RBCs) oval, biconvex, contain hemoglobin

White Blood Cells (WBCs) nucleated, pigment-less, protect against germs

Blood Platelets Colourless, nucleus-less, aid in blood clotting

Blood Clotting Prothrombin, fibrinogen, Ca^{2+} and vitamin-K are involved in blood clotting.

Blood Groups

Blood group	Recipient group	Donor group
A	A,AB	A,O
B	B,AB	B,O
AB	AB	A,B,AB,O
O	A,B,AB,O	O

Excretion

Process: elimination of harmful waste products to regulate body fluids and tissues.

Human Excretory System

- **Includes** The kidney (2), ureters (two) urinary bladder (one) and urethra (one)
- **Main organ** Kidney
- **Functional unit** Nephron (made up of Bowman's capsule and renal tubule)

Urine Characteristics

- **Colour** Pale yellow (due to urochrome pigment)
- **Composition** 95% water, 2% salts, 2.6% urea, 0.3% uric acid

Excretory Product in Animals

- **Ammonotelic Animals** Ammonia (e.g., fish)
- **Ureotelic Animals** Urea (e.g., humans)
- **Uricotelic Animals** Uric acid (e.g., birds, reptiles)

Excretory organ of Some Animal

Excretory Organ	Animal
Body surface and contractile vacuole	Amoeba
Nephridia	Earthworm
Malpighian tubules	Cockroach (insect)
Kidney	Humans, amphibians, birds, mammals
Flame cells /Solenocytes	Tapeworm
Renette cell	Ascaris
Coxal glands	Scorpion
Green glands	Prawn

Respiration

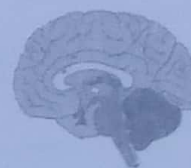
- **Oxidative process** that breaks down complex organic compounds to provide energy.
- **Anaerobic respiration** (without oxygen) produces pyruvic acid.
- **Aerobic respiration** (with oxygen) Produces CO_2 , water and 38 ATP energy.
- **Cellular respiration** Glucose oxidation in cells to produce energy.

Respiratory Organs

Respiratory Organ	Examples of Organisms
Lungs	Humans, frogs, birds, lizards
Gills	Tadpoles, fish, prawns
Respiratory tract	Insects
Body surface	Amoeba, Euglena
Skin	Frog, Earthworm

Nervous System

- Consists of central, peripheral and autonomic nervous systems
- **Central nervous system** Brain and spinal cord
- **Brain divided into** Fore-brain, mid-brain, hind-brain
- **Fore-brain** Cerebrum
- **Mid-brain** Thalamus
- **Hind-brain** Cerebellum, medulla oblongata.



Diseases and Affected Parts

Arthritis	Joints
Diphtheria	Throat, Windpipe
Eczema	Skin
Pleurisy	Chest
Cataract and Glaucoma	Eyes
Hepatitis	Liver
Trachoma	Eyes
Diabetes	Pancreas, Kidney, Eyes
Parkinson's	Brain
Rickets	Bones
Gonorrhoea and Leucorrhoea	Urinary Tract
Athlete's Foot	Feet

Disease caused by Protozoans

Disease	Pathogen	Parts Affected
Pyorrhoea	<i>Entamoeba gingivalis</i>	Tooth roots and gums
Amoebic Dysentery (Amoebiasis)	<i>Entamoeba histolytica</i>	Colon (intestine)
Diarrhoea	<i>Giardia</i>	Digestive system
Kala Azar or Dumdum Fever	<i>Leishmania donovani</i>	Spleen, liver enlarge
Filaria or Elephantiasis	<i>Wuchereria bancrofti</i>	Legs, testes
Malaria	<i>Plasmodium sp</i>	Red blood cells, spleen and liver
African Trypanosomiasis	<i>Trypanosoma gambiense</i>	Blood and nervous system

Diseases Caused By Virus

Disease	Pathogen	Affected Parts
Measles (Rubella)	Rubella virus	Whole body
Chicken Pox	Varicella virus	Whole body
Small Pox	Variola virus	Whole body
Polio/ Poliomyelitis	Polio virus	Throat, backbone, nerve
Influenza (Flu)	Influenza virus	Whole body
Rabies (Hydrophobia)	Rabies virus	Nervous system
Hepatitis (Epidemic Jaundice)	Hepatitis virus	Liver

Disease	Pathogen	Affected Parts
Dengue Fever	Dengue virus	Whole body, head, eyes, joints
AIDS	HIV	White blood cells
Herpes	Herpes virus	Skin
Ebola Virus Disease	Ebola virus	Whole body
Swine Influenza (Flu)	H ₁ N ₁ flu virus	Whole body, muscles
COVID-19	Novel Corona virus	Respiratory system

Diseases caused by Bacteria

Disease	Bacteria	Affected Organ
Tuberculosis	<i>Mycobacterium tuberculosis</i>	Lungs
Cholera	<i>Vibrio cholerae</i>	Intestine
Leprosy	<i>Mycobacterium leprae</i>	Skin, nerve
Whooping cough	<i>Bacillus pertussis</i>	Respiratory system
Diphtheria	<i>Corynebacterium diphtheriae</i>	Respiratory tract
Tetanus	<i>Clostridium tetani</i>	Central nervous system
Pneumonia	<i>Diplococcus pneumoniae</i>	Lungs
Typhoid	<i>Salmonella typhi</i>	Intestine
Anthrax	<i>Bacillus anthracis</i>	Skin, intestine
Plague	<i>Yersinia pestis</i>	Blood, lungs
Gonorrhoea	<i>Neisseria gonorrhoea</i>	Urinary tract

Genetic Diseases in Humans

Color Blindness inability to recognize red and green colors

Haemophilia blood doesn't clot for 0.5-24 hours after injury

Turner Syndrome occurs in women, 45 chromosomes (44A + XO)

Klinefelter Syndrome occurs in men, 47 chromosomes (44A + XXY), impotence

Down's Syndrome (Mongolism: irregular body structure, extra 21st chromosome

Patau Syndrome cleft lip, palate crack, related to 13th chromosome.

Cri-du-chat Syndrome Deletion of short arm of chromosome 5

Fungal Disease In Human

Disease	Fungus	Affected Part
Aspergillosis	<i>Aspergillus flavus</i> , <i>A. fumigatus</i> , <i>A. niger</i>	Lungs
Blastomycosis	<i>Blastomyces dermatitidis</i>	Skin
Candidiasis	<i>Candida albicans</i>	Mucous membranes, skin
Histoplasmosis	<i>Histoplasma capsulatum</i>	Mouth, liver
Neuritis	<i>Mucor pusillus</i>	Nervous system
Onychomycosis	<i>Trichophyton purpureum</i>	Nails

Some Important Discovery

Inventions	Inventors
Discovery of Blood Circulation	William Harvey
Identification of Blood Groups	Karl Landsteiner
Discovery of Vitamins	Funk
Stethoscope	René Laennec
Sulfa Drugs	Gerhard Domagk
Heart Transplant	Christian Barnard
Cholera Vaccine	Jaime Ferran

Inventions	Inventors
Homeopathy	Samuel Hahnemann
TB Germs and Treatment	Robert Koch
DDT	Paul Müller
Penicillin	Alexander Fleming
Polio Vaccine	Jonas Salk
BCG Vaccine	Albert Calmette, Camille Guérin
Discovery of DNA	Friedrich Miescher
Insulin	Frederick Banting, Charles Best
Smallpox Vaccine	Edward Jenner

Important Medical Devices

Device	Functions
Pacemaker	Regulates heart rate automatically
Electroencephalograph (EEG)	Tests brain function
Analyzer	Tests glucose, urea, cholesterol levels
Computed Tomography Scan (CT Scan)	Scans the whole body
Electrocardiograph (ECG)	Checks heart activity (pulsation)
Magnetic Resonance Imaging (MRI)	Detects abnormal structures or abnormalities

Important Antibiotic, Sources and Its Function

Antibiotic Name	Source Microorganism	Function
Penicillin	<i>Penicillium notatum</i>	Treats tonsillitis, rheumatic fever
Streptomycin	<i>Streptomyces griseus</i>	Prevents TB, meningitis, pneumonia
Chloramphenicol	<i>Streptomyces venezuelae</i>	Treats typhoid, intestinal infections
Tetracycline	<i>Streptomyces aureofaciens</i>	Treats viral pneumonia, whooping cough, eye infections
Terramycin	<i>Streptomyces rimosus</i>	Treats common pneumonia, typhoid, intestinal infections

Plants Providing Medicines

Common Name	Botanical Name	Family	Main Part Used
Sarpagandha	<i>Rauwolfia serpentina</i>	Apocynaceae	Root
Opium	<i>Papaver somniferum</i>	Papaveraceae	Capsule fruit
Quinine	<i>Cinchona species</i>	Rubiaceae	Bark
Belladonna	<i>Atropa belladonna</i>	Solanaceae	Dried leaves, roots
Datura	<i>Datura stramonium</i>	Solanaceae	Fruit juice
Amla	<i>Emblica officinalis</i>	Euphorbiaceae	Fruit

Computer

- Computer is an electronic machine, which is used in all areas of normal life.
- **Charles Babbage** is considered as the **Father of Computer**.
- **Abacus** was the first calculating device.

Hardware

These are parts of computer which are mechanical, electrical and electronic. It is of the following types.

Input Unit / Device

- These devices are used by user to provide **data** and **instructions** to the computer.
- **Major input devices** - Keyboard, Barcode Reader (BCR), Pointing Devices (Mouse, Light Pen), Scanner, Microphone, Optical Mark Reader (OMR), Optical Character Recognition (OCR), Magnetic Ink Character Recognition (MICR), etc.

Output Unit

The units used to display **data** and **instructions** as a result are called output units or output devices, such as printer, monitor plotter, speaker, projector, etc.

Central Processing Unit (CPU)

- All the work done in the computer is done by the CPU only. CPU is called the **brain of the computer**.
- Its main function is to **execute** programs. Apart from this, CPU also controls the **functions** of all parts of the computer, such as memory, input and output devices.
- It has two parts - Arithmetic Logic Unit (ALU) and Control Unit (CU).

Memory Unit

It stores data and instructions. There are two types of memory in it

1. **Primary Memory** It is also called internal or main memory, because it is a part of the CPU of the computer.

It is divided into two parts

RAM (Random Access Memory)	ROM (Read Only Memory)
▶ Information can be read directly instead of sequentially. ▶ Temporary memory ▶ Data gets lost as soon as power is cut. ▶ It is of Two Types - Dynamic RAM - Static RAM	▶ Information can only be read sequentially; it cannot be written. ▶ Permanent Memory ▶ Data gets saved as soon as the power is cut. ▶ This is a type of firmware.

2. **Secondary Memory** It is also called **external** or **auxiliary** memory. It has more data storage capacity than primary memory. File system is permanently stored in secondary memory, such as CD, DVD, floppy, Blu-ray disk, pen drive, hard disk drive, etc.

Unit of Memory	Equivalent
1 bit	Binary digit (0, 1)
8 bits	1 byte = 2 nibbles
1024 bytes	1 kilobyte (1 KB)
1024 kilobytes	1 megabyte (1 MB)
1024 megabytes	1 gigabyte (1 GB)
1024 gigabytes	1 terabyte (1 TB)

Note Bit is the **smallest** and Geop Byte is the **largest** memory unit.

Software

It is a set of instructions that tell a computer or other device what to do. It establishes coordination between various hardwares.

System Software

- It is a set of programs that manage a computer's hardware and applications.
- It acts as a bridge between the hardware and the user, such as operating system, language translator.
- **Device driver** This software usually contains instructions to run hardware devices.

Application Software

These are software designed for special tasks; such as calculating salaries of office employees, preparing letters and documents, etc.

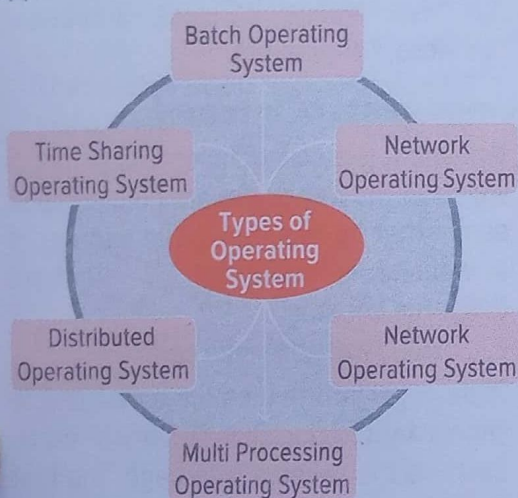
e.g., MS-Word, Chrome, DBMS, Excel, etc.

Utility Software

It is used to improve the performance of the system, keep data safe and help in tasks.

Operating System

It is a program that manages a computer's hardware and software resources. It allows users to interact with the computer and run applications.



Some common operating systems are windows, linux, macos, ios, android, etc.

Language Translator

These can translate programs written in different programming languages into machine language. There types are

- (i) **Assembler** This program translates programs written in assembly language into machine language.
- (ii) **Interpreter** It translates source programs written in high level language into machine language, but it translates only one line at a time.
- (iii) **Compiler** It translates source programs written in high level language into machine language. It translates the entire program at once.

Programming Languages.

Programs are written in special types of languages for computers. These languages are called programming languages. There is a different algorithm for these languages.

Programming languages are divided into three major parts

1. Low level languages are made according to the internal working of the computer. Their two main examples are:

- (i) **Machine languages** These languages are made up of only binary digits (0 or 1). Every computer has its own machine language.
- (ii) **Assembly languages** In these, instead of series of 0 to 1, English letters and some selected words are used as code.

2. **Middle level languages** act as a bridge between low and high level languages.

3. **High level languages** are not based on the internal working of the computer. In these languages, some selected words of English and symbols used in simple mathematics are used; e.g., Fortran, Pascal, etc.

Microsoft Office

It is a suite of software applications used for word processing and creating spreadsheets, databases. The main software of MS-Office are as follows

Microsoft Word

- It is a type of word processing software, which is used to create a document and make some improvements in it.
- Its file format is **doc** or **docx**.

Microsoft Excel

- It is a powerful spreadsheet program, which allows you to organize your data, reach decisions, access graphs, data and real time data.
- In this, a group of worksheets is called a workbook. Its file format is **.xls** or **.xlsx**.

Microsoft PowerPoint

- It is a **presentation** software.
- It helps to prepare different types of presentation easily and quickly, edit them and practice presentation.
- Its file format is **.ppt** or **.pptx**.

- **File** It is the basic unit for storing data. A file has a unique file name and extension, which identifies the type of file.
- **Folders** These are used to store files.

Microsoft Access

Microsoft Access is a type of database management system. Its file format is **.accdb**.

MS-Office Shortcut Keys

Keys	Function
Ctrl + A	To select all items
Ctrl + C	To copy the selected text
Ctrl + V	To paste the selected text
Ctrl + X	To cut the selected text
Ctrl + P	To print the document
Enter	To go to the next line in the document
Ctrl + B	To bold the selected text

Networking

- It is process through which different devices and computers are interconnected so that they can **share data** and **resources**.
- It works in different types of networks such as Local Area Network (**LAN**), Metropolitan Area Network (**MAN**) and Wide Area Network (**WAN**).

Internet

Internet is a **network of networks**, which has a large network of small and big computers spread across the world, which remain in contact with each other through telephone.

Internet Connections

Some internet connections for internet access are as follows

1. **Dial-up connection** It is a medium to connect to the internet with the help of telephone line.
2. **Broadband connection** It is used for high speed internet access. It uses telephone lines to connect to the internet, such as digital subscriber line (DSL), cable modem, fiber optic, broadband over power line etc.
3. **Wireless connection** This type of connection does not require cable or modem etc.; e.g. Wi-Fi (Wireless Fidelity), Wi Max, Mobile Wireless Broadband Services, Satellite etc.

Components of Internet

- **Website** It is a collection of web pages, in which all the web pages are connected to each other by hyperlinks. The address of a website is called its **URL** (Uniform Resource Locator).
e.g. <http://www.bseindia.com>
- **Web page** Information in a website is shown by dividing it into several parts. Each part is called a web page. The first or main web page of a website is called its **home page**.
- **World Wide Web (WWW)** It is a system of Internet servers that support specially formatted documents. It is also called the **web**, which includes several million documents.
- **Web browser** It is an application software, which is used to find and display the content of the World Wide Web.
- **E-mail** Electronic mail (e-mail) is an electronic message that is sent and received between different computers connected to a network.
- **Video conferencing** Transmission in the form of **video** and **audio** is called video conferencing.

- **Search engines** These are programs that locate websites containing information on a subject; such as Google, Yahoo, etc.
- **Artificial intelligence (AI)** It is a set of technologies that allow computers to perform tasks that usually require human intelligence.
- At present, India has many supercomputers. e.g., Airavat-AI, Param, Pratyush etc.
- Arka and Arunika are high-performance computing systems focused on enhancing weather and climate forecasting capabilities.

- **ChatGPT** (Generative Pretrained Transformer), developed by OpenAI is one of Large Language Model Based AI tool. Other includes Bard, Gemini, Claude, etc.
- Hanooman and Krutrim AI are examples of home grown AI model.

Supercomputer

- Supercomputers have the highest speed, storage capacity and high expansion. Their size is equal to a normal room.
- The world's first supercomputer was **CDC 6600**. It was designed by Seymour Cray, who is often called the 'Father of Supercomputing'.

Top 3 Supercomputers of India

Rank	Supercomputer	Institution	Location
1	Airavat	CDAC	Pune
2	Param Siddhi	CDAC	Pune
3	Pratyush	IITM	Pune

Top 3 Supercomputers of the World

Rank	Supercomputer	Country
1	Frontier	USA
2	Aurora System	USA
3	Eagle	USA

Computer Security

Computer security is also known as **cyber security** or **IT security**. It is a branch of intelligence technology, which is specially designed for the security of computers.

Malware

Malware or malicious software is any program or file which is intentionally harmful to a computer, network or server. Viruses, worms, trojan, etc are the types of malware.



Trojan

Trojan horse is a type of non-self replicating malware that appears to perform any desired task.

Virus

It gains control over the PC and make it do abnormal and destructive tasks. Viruses automatically copy themselves in the system, such as program virus, boot virus, multipartite virus etc.

WORM

Computer worm is the only malware program which copies itself to spread itself in other computers. It is very difficult to find worms because they are in the form of invisible files.

Antivirus software

This software is used to protect the computer from viruses, such as spyware, Born, Trojan, etc.

Firewall

It is software or hardware based, which controls incoming and outgoing network traffic by analyzing data packets.

Digital signature

It is the digital form of signature, which is used to authenticate the transmitted message.

Password

It is a string of secret words or characters, which is used to authenticate the user. This verifies access approval.



GENERAL KNOWLEDGE

First in World

<i>First in World</i>	<i>Names</i>
First country to start civil services competition	China
First country to make education compulsory	Prussia (Now Germany)
First country to make a Constitution	United States of America
First country to issue paper currency	China
First country to start plastic currency	Australia
First country to make map	The Greeks
The first country to launch an artificial satellite into space	Russia (Soviet Union)
First space shuttle launched	Columbia
First spaceship landed on Mars	Viking-I
First unmanned mission on the moon	LUNA-9
First Radio Telescope Satellite launched into space	HALCA (Japan)
First country to send human to moon	United States of America
World's First Multipurpose river valley project	Tennessee River Valley Project, USA
First country to start underground metro rail	Britain
World's first 3D printed mosque	Abdulaziz Abdullah Sharbatly, Jeddah (Saudi Arabia)
World's first 3D printed temple	Siddhipet (Telangana)
First country to lost all its glaciers	Venezuela
World's first air-lift portable hospital	Bhisma

First country in world to introduce Meningitis vaccine

Nigeria

First country to grant women the right to vote

New Zealand (1893)

First in World (Male)

<i>First in World</i>	<i>Name</i>
First to reach South pole	Roald Amundsen
First to reach North pole	Robert Peary
First to set foot on Moon	Neil Armstrong
First to fly an aeroplane	Wright Brothers
First man to win Nobel Prize for Physics	WK Roentgen (Germany)
First man to win Nobel Prize for Chemistry	JH Wenthoff
First man to win Nobel Prize for Literature	Sully Prudhomme
First man to win Nobel Prize for Medicine	AE Von Behring
First man to win Nobel Prize for Economics	Ragnar Frisch and Jan Tinbergen
First man to win Nobel Prize for Peace	Jean H. Dunant and Fredrick Perry
First Secretary General of United Nations	Trygve Lie
First Judge of International Court of Justice	Jose G. Guerrero (El Salvador)
First Asian chairman of ICC	Jagmohan Dalmia (1997-2000)
First man to climb Mount Everest	Sherpa Tenzing, Edmund Hillary
First man to climb Mount Everest twice	Nawang Gombu
First man to climb Mt. Everest on 30 times	Kami Reeta Sherpa (Nepal)

First in World (Female)

First in World	Name
First Prime Minister	S Bandaranaike
First President of UN General Assembly	Vijaya Laxmi Pandit
First woman Ambassador	CB Muthamma
First Lieutenant General	Puneeta Arora
First to reach the North pole	Ann Bancroft
First to reach Antarctica	Caroline Michaelson
First to climb Mt. Everest	Junko Tabei, Japan
First to climb Mt. Everest twice	Santosh Yadav
First to perform an accelerated free fall jump over Antarctica from 10,000 ft.	Shital Mahajan
First to cross the Strait of Gibraltar	Mercedes Gleitze
Youngest swimmer to cross the English Channel	Jiya Rai
First to win a Nobel Prize	Marie Curie

Superlatives in World (Largest, Longest, Tallest and Smallest)

Largest Continent	Asia
Largest country (in population)	India
Largest country (in area)	Russia
Smallest continent	Australia
Smallest country	Vatican City
Largest Peninsula	Arabia (32,50,000 sq km)
Largest Gulf	Gulf of Mexico, Shoreline 2100 miles
Longest mountain Range	Andes (South America) about 7000 Km in length
Highest mountain Peak	Mt. Everest (Nepal)
Highest Mountain Range	Himalayas
Highest Plateau	Pamir (Tibet)
Largest Desert	Sahara, Africa
Largest Asian Desert	Gobi, Mongolia
Largest Island	Greenland
Longest Strait	Strait of Malacca
Largest Coral formation	The Great Barrier Reef (Australia)
Deepest and biggest ocean	The Pacific Ocean
Largest River basin	Amazon basin (27,20,000 sq miles)

Largest river in volume	Amazon, Brazil
Longest River	Nile (6690 km)
Shortest River	Roe river (201 Feet/ 61 m long)
Largest Sea (inland)	Caspian Sea (1,43,200 sq miles)
Largest Lake (Artificial)	Lake Volta (Ghana)
Largest Lake (fresh water)	Lake Superior, USA
Largest Lake (salt water)	Caspian Sea (3,71,000 sq km)
Highest Lake	Titicaca (Bolivia) 12,645 ft. above sea level
Deepest lake	Baikal (Siberia, Russia); depth 5314 ft. (1637 m)
Highest waterfall	Salto Angel falls (Venezuela)
World's largest single site solar power plant	Abu Dhabi (UAE)
Largest Dam	The Three Gorges Dam (China)
Longest river dam	Hirakud dam (Odisha), India 15.8 miles
Largest Port	Port of Shanghai (China)
Largest Volcano	Mauna Loa (Hawaii)
Largest diamond producing mine	Aikhal (Russia)
Longest Platform (Railway)	Hubballi Junction in India, 1,507 m (4,944 ft)
Longest Bridge (Railway)	DanYang-Kunshan Grand Bridge, Beijing (China)
Longest Railway	Trans-Siberian Railway (5,772 miles long)
Longest and Deepest Rail tunnel	Gotthard tunnel (Switzerland), (57.09 Km)
Longest and Largest Canal tunnel	Le Rove Tunnel (South of France)
Largest Cricket Stadium	Narendra Modi Stadium (Ahmedabad)
Highest Volcano	Ojos del Salado, Andes, Argentina-Chile
Tallest statue	'Statue of Unity' (182 m), Sardar Vallabhbhai Patel, Gujarat (India)
Coldest Place or Region	East Antarctic Plateau (-93.2 degree Celsius)
Driest Place	Atacama Desert (South America)
World Rainiest spot	Mawsynram, Meghalaya, India (11,873 mm)

World's Five Highest Buildings

- 1 Burj Khalifa** Dubai, UAE 2717 Feet
- 2 Merdeka 118** Kuala Lumpur, Malaysia 2227 Feet
- 3 Shanghai Tower** Shanghai, China 2073 Feet
- 4 Abraj Al-bait** Clock tower Mecca, Saudi Arabia 1972 Feet
- 5 Ping An Finance Center** Shenzhen, China 1966 Feet



Capital, Currencies of the Major Countries in the World

Country	Capital	Currency
Afghanistan	Kabul	Afghani
Australia	Canberra	Australian dollar
Bangladesh	Dhaka	Taka
Bhutan	Thimphu	Ngultrum
Brazil	Brasilia	Real
Canada	Ottawa	Canadian dollar
China	Beijing	Chinese Yuan
Egypt	Cairo	Egyptian Pound
France	Paris	Euro
Germany	Berlin	Euro
Greece	Athens	Euro
India	New Delhi	Indian Rupee
Indonesia	Jakarta	Rupiah
Iran	Tehran	Rial
Iraq	Baghdad	Iraqi Dinar
Israel	Jerusalem	Shekel
Italy	Rome	Euro (formerly lira)
Japan	Tokyo	Yen
Malaysia	Kuala Lumpur	Ringgit
Mongolia	Ulaanbaatar	Togrog
Myanmar (Burma)	Nay Pyi Taw	Kyat
Nepal	Kathmandu	Nepalese rupee
Pakistan	Islamabad	Pakistani rupee
Russia	Moscow	Ruble
Saudi Arabia	Riyadh	Riyal
Singapore	Singapore	Singapore dollar
Spain	Madrid	Euro (formerly peseta)
Sri Lanka	Colombo; Sri Jayewardene-pura Kotte	Sri Lankan rupee
Switzerland	Berne	Swiss franc
Thailand	Bangkok	Baht

Country	Capital	Currency
Turkey	Ankara	Turkish lira (YTL)
Ukraine	Kiev	Hryvnia
United Arab Emirates	Abu Dhabi	UAE Dirham
United Kingdom	London	Pound sterling
USA	Washington DC	Dollar

Important Languages of World

Language	Spoken Population (in Crore)
Chinese (Mandarin)	94.1
Spanish	48.6
English	38.0
Arabic	45.0
Hindi	34.5
Portuguese	23.6

Important Monuments/Structures

Monument	Country
Statue of Liberty (New York)	USA
Kremlin (Moscow)	Russia
Imperial Palace (Tokyo)	Japan
Eiffel Tower (Paris)	France
Leaning Tower of Pisa	Italy
Opera House (Sydney)	Australia
Christ the Redeemer	Brazil
Machu Picchu	Peru
Taj Mahal (Agra)	India
The Great Sphinx (Giza)	Egypt
Pyramid (Giza)	Egypt
Parthenon (Athens)	Greece
Wailing Wall	Jerusalem
The Colosseum	Italy

First in India

First Indian Talkie/Talking or Sound Film	Alam Ara, 1931 (Director-Ardeshir Iram)
First 3D Film	My Dear Kuttichathan (Malayalam)
First football club	Mohun Bagan (1889)
First newspaper	Hicky's Bengal Gazette (1779)
First census	1872
First Army Institute of Information Technology	Hyderabad
First Post-Office	Kolkata (1727)
First passenger drone	Varuna
First Hydel Power Plant	Darjeeling (1898)
First Oxygen Bird Park	Nagpur (Maharashtra)
Country's first rice ATM	Bhubaneswar (Odisha)
First sea glass bridge	Kanyakumari
First underwater metro	Kolkata
First driverless metro train	Bengaluru
First 'Skill India Centre'	Sambalpur, Odisha
First state to introduce Uniform Civil Code	Uttarakhand
First AI city will be built in	Lucknow (UP)
First city of literature	Kozhikode (Kerala)
India first wetland city	Udaipur (Rajasthan)
India's first drone testing centre	Tamil Nadu
India's first Fisheries Atal Incubation Centre	Kerala

First in India (Male)

First in India	Name
First Indian Governor-General of Independent India	C. Rajagopalachari
First Indian Member of British Parliament	Dadabhai Naoroji
First President of Indian National Congress	Womesh Chandra Bannerjee
First Commander-in-Chief of Free India	General Kondandera M. Cariappa
First National Security Advisor	Brajesh Mishra
First Indian ICS Officer	Satyendra Nath Tagore
First Speaker of Lok Sabha	GV Mavlankar
First Indian Nobel Laureate	Rabindra Nath Tagore

First Chief Justice of India	HJ Kania
First foreign recipient of Bharat Ratna	Abdul Ghaffar Khan
First Indian to win Stalin Award	Saifuddin Kichlu
First Indian to win Magsaysay Award	Acharya Vinoba Bhave
First man to climb Mt. Everest twice	Nawang Gombu
Youngest Indian to conquer Mount Everest	Kamya Karthikeyan



First Prime Minister to born after Independence
Narendra Modi



First Lokpal
Pinaki Chandra Ghosh



First recipient of Bharat Ratna
Dr. Sarvepalli Radhakrishnan

First Indian to reach Antarctica	Lt. Ram Charan
First Indian to reach the South Pole	Col. JK Bajaj
First Indian to swim across the English Channel	Mihir Sen
Oldest Indian to swim across the English Channel	Siddharth Agarwal
First Indian Space tourist to reach space	Gopi Thotakura
First Man in Space	Rakesh Sharma
First satellite	Aryabhata
First Pilot	J.R.D. Tata
First to become a youngest chess world champion	Gukesh Dommaraju
First to win a gold medal at Olympic	Abhinav Bindra
First Indian Grandmaster	Vishwanathan Anand
First gymnast to win a medal at the Commonwealth Games	Ashish Kumar
First to win a medal at World Badminton Championship	Prakash Padukone
First Param Vir Chakra Awardee	Major Somnath Sharma
First Field Marshal	Sam Manekshaw

First in India (Female)

First in India	Name
First President	Pratibha Patil
First Chief Minister	Sucheta Kripalani (UP)
First Speaker of a State Assembly	Shanno Devi (Haryana)

First Defence Minister	Nirmala Sitharaman
First President of INC	Annie Besant
First recipient of Oscar Award	Bhanu Athaiya
First ruler (on Delhi's throne)	Razia Sultan



First tribal President
Draupadi Murmu



First female Governor of India
Sarojini Naidu



First female Prime Minister of India
Indira Gandhi

First IPS officer	Kiran Bedi
First IAS officer	Anna Rajam Malhotra
First IFS officer	Chonira Belliappa Muthamma
First lawyer/Barrister	Cornelia Sorabji
First Army Officer	Captain Lakshmi Sehgal
First Rafale Pilot	Flight Lieutenant Shivangi Singh
First Fighter pilots	Avani Chaturvedi, Bhavna Kanth and Mohana Singh
First sniper of BSF	Suman Kumari
First subedar of Indian Army	Preeti Rajak (MP)
First transgender SI	Manvi Madhu Kashyap
First astronaut	Kalpna Chawla
First medical officer to be posted at an 'operational post' in Siachen glacier	Captain Fatima Wasim
First medical officer to be posted on Siachen	Geetika Kaul
First to get Ashok Chakra	Nirja Bhanot
First to get the Nobel Prize	Mother Teresa
First to get Bharat Ratna Award	Indira Gandhi
First to get Jnanpith award	Ashapurna Devi
First to win the Booker Prize	Arundhati Roy
First to win a gold in Asian games	Kamaljeet Sandhu

First to win an Olympic medal in shooting/First Indian to win two medals in same Olympics	Manu Bhaker (women's 10m air pistol event at the 2024 Paris Olympics)
First to go into Space	Kalpna Chawla
First to operate a rover on mars	Dr. Akshata Krishnamurthy
First to climb Mt. Everest	Bachendri Pal
Oldest to climb Mt. Everest	Jyoti Ratre
First to swim across English Channel	Aarti Saha
First to become Miss World	Reita Faria
First to become Miss Universe	Sushmita Sen

Superlatives in India (Largest, Longest, Tallest and Smallest)

Largest Cave temple	Kailash Temple (Ellora, Maharashtra)
Largest Dome	Gol Gumbaz, Bijapur (in Karnataka)
Largest Planetarium	M.P. Birla Planetarium (Kolkata)
Largest lake	Vembanad (Kerala)
Largest Saline Water lake	Chilika Lake (Odisha)
Largest Freshwater lake	Wular Lake (Jammu & Kashmir)
Largest Artificial Lake	Govind Ballabh Pant Sagar (U.P)
Longest river	The Ganga (2525 km)
Longest Southern river	Godavari
Largest Delta	Sundarbans (W. Bengal)
Biggest river island	Majuli Island, Brahmaputra (Assam)
Longest river bridge	Bhupen Hazarika (Dhola Sadiya) Bridge (9150 m)
Longest sea bridge of India	Atal Setu (Mumbai Trans Harbour Link MTHL)
Largest Natural Port	Mumbai, Maharashtra
Longest Canal	Indira Gandhi Canal or Rajasthan Canal (Rajasthan)
Longest dam	Hirakud dam (Odisha) 25.79 km
Highest dam	Tehri dam, Bhagirathi

Highest waterfall	Kunchikal Falls (Karnataka) 455 m
Deepest river valley	Bhagirathi and Alaknanda
Largest desert	Thar (Rajasthan)
Largest State (area wise)	Rajasthan 342,239 sq km
State with longest coastline	Gujarat (1600 km. app.)
Largest district (in terms of area)	Kachchh, Gujarat (45,652 sq km)
Longest national highway	NH-44 (Srinagar – Kanyakumari) (4113 km)
Longest road tunnel	Shyama Prasad Mukherjee Tunnel, NH-44 (J & K) (9.25 km)

Longest railway tunnel	Pir Panjal railway tunnel (J & K) 11.215 km
Longest Passenger train	Vivek Express
Fastest train in India	Vande Bharat Express (180 km/h)
Highest railway bridge	Chenab Rail Bridge in Jammu and Kashmir, India, 359 meters
Highest Road	Uming La (in Ladakh near Demchok)
Highest peak	Godwin Austen/K-2
Highest battlefield and the longest Glacier	Siachen Glacier
Highest airport	Leh Airport (Ladakh)
Largest animal fair	Sonepur (Bihar)

Arts and Culture

Major Classical Dances/Dancers of India



Kuchipudi

Andhra Pradesh Yamini Krishnamurthy, Radha Reddy, Raja Reddy, Swapna Sundari



Mohiniyattam

Kerala Bharti Shivaji, Thankamani Shantarao



Kathakali

Kerala Mrinalini Sarabhai, Guru Shankaran, Namboodiripad, Shankar Kurup, K.C. Panicker



Manipuri

Manipur Suryamukhi Devi, Guru Vipin Singh



Kathak

U.P. and Rajasthan Birju Maharaj, Achhan Maharaj, Sitara Devi, Roshan Kumari



Bharatanatyam

Tamil Nadu Sonal Mansingh, Yamini Krishnamurthy, Mrinalini Vijayanti Mala, Hema Malinir



Odissi

Odisha Protima Devi, Sonal Mansingh, Kelucharan Mahapatra, Madhavi Mudgal



Sattriya

Assam Haricharan Saikia, Pradeep Chaliha, Prabhat Sharma

Folk Dance in India

States/UTs	Folk Dances
Assam	Bihu, Khel Gopal, Kaligopal, Bhortal, Bagurumba, Natpuja
Punjab	Kikli, Bhangrha, Giddha
HP	Jeddah, Nati, Chamba, Chapeli
Haryana	Dhamaal, Khorla, Phag, Dhahikal
Maharashtra	Lezim, Tamasha, Lavani, Koli

States/UTs	Folk Dances
J & K	Damali, Hikar, Dandi Naach, Rauf
Rajasthan	Gangaur, Ghumar, Jhoolan Leela
Gujarat	Garba, Dandiya Raas, Panihari, Raasleela, Lasya, Ganpati Bhajan
Bihar	Jat-Jatin, Kirtania, Pawariya, Sohrai, Sama-Chakeva, Jatra

States/UTs	Folk Dances
Uttar Pradesh	Danga, Jhinka, Chhau, Lujhari, Jhora, Kajri, Nautanki, Thali, Jatta
Kerala	Margamkali, Koodiyattam, Mohiniyattam, Kolkali
West Bengal	Karankathi, Gambhira, Jalaya, Baul Dance, Bhavai
Nagaland	Kuminaga, Rengmanaga, Lim, Chong, Yuddha dance, Khaiva
Manipur	Sankirtan, Laihriba, Talam of Thang Ta, Basantaram, Rakhal
Mizoram	Cherokan, Pakhulia dance
Jharkhand	Sua, Panthi, Raut, Karma, Phulki Dorla, Sarhul, Paika, Natua, Chhau
Odisha	Agni, Dandanut, Paika, Jadoor, Mudari, Aaya, Sawari, Chhau
Uttarakhand	Chanchari/Jhora, Chhapeli, Choliya, Jhumailo, Jagar, Chaufala
Karnataka	Yakshagana, Bhootakola, Veergasse, Kodava
Andhra Pradesh	Ghantamardaala, Batkamma, Kummi, Chharhi
Chhattisgarh	Sua, Karma, Rahas, Raut, Sarhul, Bar, Naacha, Ghasiya Baja, Panthi
Tamil Nadu	Kolattam, Kummi Karagam

Folk Art Forms

Art Forms	States
Rangoli	Maharashtra
Alpana	West Bengal
Mandana, Mehndi	Rajasthan
Aripan, Godna	Bihar
Rangavalli	Karnataka
Aipan	Uttarakhand
Adupana	Himachal Pradesh
Kalamkari, Muggu	Andhra Pradesh
Sadhiya (Saathiya)	Gujarat
Kollam	Tamil Nadu
Kalam	Kerala

Architectural Styles

Nagara style	Sun Temple (Konark), Jagannath Temple (Puri)
Dravid style	Kailash Temple (Kanchi), Brihadeeshwar Temple (Tanjore)
Besar style	Kailash Temple (Ellora), Dashavatar Temple (Devgarh, Jhansi)



Violin

Balamurali Krishnan, Govindaswami Pillai, T.N. Krishnan, R.P. Sastri



Flute

Hariprasad Chaurasia, Rajendra Prasanna, Pannalal Ghosh, Devendra Mukteshwar



Sarod

Ali Akbar Khan, Alauddin Khan, Ashok Kumar Rai, Amjad Ali Khan



Shehnai

Bismillah Khan, Shailesh Bhagwat, Anant Lal, Bholanath Tamanna, Hari Singh



Sitar

Pt. Ravi Shankar, Ustad Vilayat Khan, Anupama Bhagwat, Nishat Khan, Niladri Kumar



Tabla

Allarakha, Zakir Hussain, Latif Khan, Gudai Maharaj, Ambika Prasad



Santoor

Pt. Shivkumar Sharma, Tarun Bhattacharya, Bhajan Sapori



Veena

Brahmaswaroop Singh, S. Balachandran, Asad Ali, Gopal Krishna



Sarangi

Pt. Ramnarayan, Dhruv Ghosh, Arun Kale, Ashiq Ali Khan, Wazir Khan, Ramzan Khan



Harmonium

Ravindra Talogaonkar, Appa Julgaonkar, Mahmood Dholpuri



Guitar

Vishwamohan Bhatt, Nalin Majumdar, Brajbhushan Kabra, Keshav Talogaonkar



Nadaswaram

Rajaratna Pillai, Neeruswamy Pillai, Sheikh Chinna Maulana

Musical Instruments & Prominent Players

Abbreviations

A

ABM	Anti-Ballistic Missile
ADB	Asian Development Bank
AFSPA	Armed Forces Special Powers Act
ATM	Automatic Teller Machine
APEC	Asia-Pacific Economic Cooperation
AU	African Union
ASEAN	Association of South-East Asian Nations
ASHA	Accredited Social Health Activist

B

BARC	Bhabha Atomic Research Centre
BSE	Bombay Stock Exchange
BPO	Business Process Outsourcing

C

Chat GPT	Chat Generative Pre-Trained Transformer
CAG	Comptroller and Auditor General
CBDT	Central Board of Direct Taxes
CIB	Crime Investigation Bureau
COP	Conference of Parties
CRR	Cash reserve ratio
CRPF	Central Reserve Police Force
CVC	Central Vigilance Commission
CBI	Central Bureau of Investigation

D

DBT	Direct Benefit Transfer
DTP	Diphtheria-Tetanus-Pertussis
DDT	Dichloro Diphenyl-Trichloro-Ethane
DNA	Deoxy-ribose nucleic acid

E

ELISA	Enzyme-linked Immunosorbent assay
EMI	Equated Monthly Installment
EVM	Electronic Voting Machine

F

FCI	Food Corporation of India
FICCI	Federation of Indian Chambers of Commerce and Industry

FIR	First Information Report
FSSAI	Food Safety and Standards Authority of India

G

GATT	General Agreement on TARIFFS and Trade
GM	Genetically modified
GPS	Global Positioning System
GSLV	Geosynchronous Satellite Launch Vehicle
GST	Goods and Services Tax

I

ICAR	Indian Council of Agricultural Research
IMA	Indian Medical Association
IMPS	Immediate Payment Service
ISDN	Integrated Service Digital Network
INTERPOL	International Police Organization
IAEA	International Atomic Energy Agency
IBRD	International Bank for Reconstruction and Development
IRBM	Intermediate Range Ballistic Missile
ICC	International Cricket Council

K

KCC	Kisan Call Center/Kisan Credit Card
KYC	Know Your Customer

M

MBBS	Bachelor of Medicine and Bachelor of Surgery
MODVAT	Modified Value Added Tax
MSP	Minimum Support Price

N

NRC	National Register of Citizens
NASA	National Aeronautics and Space Administration
NCERT	National Council of Educational Research and Training
NDA	National Defence Academy
NPS	National Pension Scheme

NOTA None of the above
NSA National Security Advisor
NSSO National Sample Survey Organisation
NEERI National Environment Engineering Research Institute
NRC National Register of Citizens
NPCI National Payment Corporation of India



OPEC Organisation for Petroleum Exporting Countries
OMR Optical Mark Reader
ONGC Oil and Natural Gas Corporation
OROP One Rank One Pension
ODF Open Defecation Free



PWD Public Works Department
PAN Permanent Account Number
PIN Postal Index Number
PPP Public Private Partnership



RTI Right to Information
RADAR Radio Detecting and Ranging
RAM Random access memory

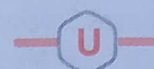


SAARC South Asian Association for Regional Cooperation

SEBI Securities Exchange Board of India
SLV Satellite Launch Vehicle



TRAI Telecom Regulatory Authority of India



UNCTAD United Nations Conference on Trade and Development
UNESCO United Nations Educational Scientific and Cultural Organization
UNFCCC United Nations Framework Convention on Climate Change
UNICEF United Nations International Children's Emergency Fund
UNSC United Nations Security Council
UIDAI Unique Identification Authority of India
UPI Unified Payments Interface



WMO World Meteorological Organization
WWF World Wildlife Fund
WHO World Health Organization



YMCA Young Men's Christian Association
YWCA Young Women's Christian Association

Important Days

January	February	March
10 World Hindi Day	2 World Wetlands Day	3 World Wildlife Day
12 National Youth Day	4 World Cancer Day	4 National Safety Day
15 Indian Army Day	11 Samarpan day	8 International Women's Day
23 Parakram Divas	20 World Day of Social Justice	15 World Consumer Rights Day
24 National Girl Child Day	21 International Mother Language Day	16 National Vaccination Day
25 National Tourism Day, National Voters Day	24 Central Excise Day	21 International Day of Forests
26 Republic Day of India	28 National Science Day (C.V. Raman)	22 World Water Day
30 Martyrdom Day		

April

- 7 World Health Day
- 14 BR Ambedkar Remembrance Day
- 21 National Civil Service Day
- 22 World Earth Day
- 24 National Panchayati Day
- 25 World Malaria Day

May

- 1 International Labour Day
- 3 World Press Freedom Day
- 8 World Red Cross Day
- 11 National Technology Day
- 21 National Anti-terrorism Day
- 24 National Commonwealth Day
- 31 World No-Tobacco Day

June

- 5 World Environment Day
- 7 World Food Safety Day
- 8 World Ocean Day
- 12 World Day Against Child Labour
- 20 World Refugee Day
- 21 International Yoga Day
- 23 International Olympic Day, UN Public Service Day

July

- 1 National Doctor's day
- 11 World Population Day
- 17 World Day for International Justice
- 28 World Nature Conservation Day, World Hepatitis Day
- 29 International Tiger Day

August

- 7 Javelin throw day (Neeraj Chopra)
- 12 International Youth day
- 15 India Independence day
- 19 World Humanitarian Day
- 23 National Space day
- 29 National Sports Day (Major Dhyan Chand)

September

- 5 National Teachers' Day (Birthday of Sarvepalli Radhakrishnan)
- 8 International Literacy Day
- 14 National Hindi day
- 15 International Day of Democracy
- 16 World Ozone Day
- 21 International day of peace
- 27 World Tourism Day

October

- 2 Mahatma Gandhi's birthday (International Day for Non-Violence)
- 5 World Teachers day
- 8 Indian Air Force Day
- 9 World Post Office day
- 11 International Girl Child Day
- 13 UN International Day for National disaster reduction
- 14 World Standards Day
- 15 World Students' Day (Birthday of APJ Abdul Kalam)
- 16 World Food Day
- 24 United Nation day
- 31 National Unity Day (Sardar Patel Jayanti)

November

- 9 World Freedom Day
- 10 World Science Day
World Immunisation Day
World Public Transport Day
- 11 National Education Day
- 14 National Children's Day
- 15 Janjatiya Gaurav Diwas (Birsā Munda)
- 16 National Press Day
- 17 World Students Day
- 26 National Law day/National Constitution day

**December**

- 1 World Aids Day
- 4 Navy Day (India)
- 9 International day against corruption
- 10 Human Right Day
- 14 World Energy Conservation Day
- 22 National Mathematics Day (Srinivasa Ramanujan)
- 23 Kisan Divas (Birthday of Choudhary Charan Singh)
- 25 Good Governance day (Birthday of Atal Bihari)

Books and Authors

Author	Book/Books	Author	Book/Books
R K Narayan	Guide, Dark Room, Indian Thought. A Miscellany, The Bachelor of Arts	MJ Akbar	Nehru : The Making of India, Gandhi: A Life in three Campaigns
Khushwant Singh	A History of the Sikhs, Train to Pakistan	Kapil Sibal	I Witness : Partial Observations
Chetan Bhagat	Revolution-2020, Three Mistakes of My Life	Amish Tripathi	The Immortals of Meluha, The Secret of the Nagas, The Oath of the Vayuputras
Jagdish Bhagwati and Arvind Panagariya	India's Tryst with Destiny	Meghnad Desai	The rediscovery of India
Ramchandra Guha	Makers of Modern India, India after Gandhi, Speaking with Nature	Meera Kumar	Indian Parliamentary Diplomacy-Speaker's Perspective
Sharad Pawar	On My Terms	Jaswant Singh	Jinnah: India, Partition, Independence
Yuvraj Singh	The Test of My Life	Sanjay Barua	The Accidental Prime Minister
Manoj. M. Naravane	Four Stars of Destiny	Nilanjan Mukhopadhyay	Narendra Modi : The Man The Times
Pranab Mukherjee	Challenges Before the Nation, Off the Track : A Few Comments on Current Affairs	Andy Marino	Narendra Modi: A Political Biography
Ravichandran Ashwin (Siddharth Monga)	I Have the Streets : A Kutti Cricket Story	Sachin Tendulkar, Boria Mujumdar	Playing It My Way (autobiography)
Sam Pitroda	The Idea of Democracy	Narendra Modi	Exam warriors, Samaveda of New India
Sreedharan Pillai	Basic Structure and Republic	Arunima Sinha	Born Again on the Mountain
D Subbarao	Just a Mercenary? Notes from My Life and Career	APJ Abdul Kalam	My Journey: Transforming Dreams into Action, Wings of Fire, Ignited Minds, India 2020: A Vision for the New Millennium, Turning Points
Rahil Lamba and Raghuram Rajan	Breaking the Mould : Reimagining India's Economic Future	V Srinivas	G-20 @ 2023; The Roadmap to Indian Presidency
Bhim Singh	75 Great Revolutionaries of India	Chetan Maru	Western Lane
K V Subrahmanyam	India @ 100	Kuldeep Nayyar	India after Nehru
Colonel MB Ravindranath	Kargil War : The Turning Point	Arvind Ghosh	Life Divine, Essays on the Gita
Dalai Lama and Kailash Satyarthi	The Book of Compassion	YS Rajan	Dr. APJ Abdul Kalam: Memories Never Dies
Dr. R. Balasubrahmanyam	Power Within : The Leadership Legacy of Narendra Modi	Premchand	Godan, Gaban, Karmabhoomi, Rangbhoomi
Raghuram G. Rajan	Saving Capitalism from the Capitalists, I Do What I Do	Sarojini Naidu	Golden Threshold, Broken Wings, The Song of India
Lal Krishna Advani	My Country My Life	Indira Gandhi	Internal India, My Truth
Shashi Tharoor	The Great Indian Nobel, India Shastra : Reflections on the Nation in Our Time, The Paradoxical Prime Minister	Sarvepalli Radhakrishnan	The Principle of Upanishads, Indian Philosophy

Author	Book/Books
Geetanjali Shree	Tomb of Sand
Amitabh Kant	Made in India
Mahatma Gandhi	My Experiments with the Truth, The Way to Communal Harmony, Non-violence in Peace and War
Kiran Bedi	What Went Wrong and Why, Flight Into Fear
Salman Rushdie	Midnight's Children, Shame, Fury, Two Years Eight Months and Twenty-Eight Nights
Arundhati Roy	The Algebra of Infinite Justice, Greater Common Good, God of the Small Things, Azadi : Freedom, Fascism, Fiction, The Ministry of Utmost Happiness
Jawaharlal Nehru	Discovery of India
Dr. Rajendra Prasad	India Divided
Amitabh Ghosh	Smoke and Ashes, The Great Derangement : Climate Change and the Unthinkable
K P Mathur	The Unseen Indira Gandhi : Thongs Her Physician's Eyes
Anirudh Kanisetti	Lords of the Deccan (Sahitya Akademi 2023)
Natwar Singh	One Life is Not Enough
P. Chidambaram	A view From Outside
Kailash Satyarthi	Covid-19 : Sabhyata Ka Sankat Aur Samadhan, Azad Bachpan ki Ore
Gaurav Pandey	Smritiyon Ke Beech Ghiri Hai Prithvi (Sahitya Akademi 2024)
Anupam Kher	Your Best Day is Today

Important Foreign Authors and Books

Author	Name of book
Sir Isaac Newton	Principia
Katherine Mayo	Mother India
Bill Gates	Source Code: My Beginnings
Gotabaya Rajapaksa	The Conspiracy
Plato	Republic
Rousseau	The Social Contract

Author	Name of book
Winston Churchill	The Gathering Storm
Charles Darwin	Descent of Man
Shakespeare	Comedy of Errors, As You Like It, A Midsummer Night's Dream
V S Naipaul	A House for Mr. Biswas, India a Wounded Civilization
Jon Fosse	I Am the Wind
Nelson Mandela	Long Walk to Freedom
George Bernard Shaw	Man and Superman, Arms and the Man Shaw
Leo Tolstoy	War and Peace
Mao-tse-tung	On Contradiction
Karl Marx	Das Capital
Taslima Nasreen	Lajja, Visarjan and Nirvasan
Adam Smith	The Wealth of Nations
Adolf Hitler	Mein Kampf
Albert Einstein	The World as I See It
Aristotle	Politics
E M Forster	A Passage to India
Ruskin Bond	A Flight of Pigeons, The Golden Years
Rudyard Kipling	The Jungle Book
Samantha Harvey	Orbital (Booker 2024)

Nicknames of Personalities

Nicknames	Name
Frontier Gandhi	Khan Abdul Ghaffar Khan
Father of the Nation, Babu	Mahatma Gandhi
Iron Man	Sardar Vallabhbhai Patel
Man of Peace	Lal Bahadur Shastri
Punjab Kesari	Lala Lajpat Rai
Deshbandhu	Chittaranjan Das
Deen Bandhu	C. F. Andrews
Lokmanya	Bal Gangadhar Tilak
Loknayak	Jaiprakash Narayan
Rajarshi	Purushottam Das Tandon
Gurudev	Rabindranath Tagore
Guruji	MS Golwalkar
Rajaji	Chakraborty Rajagopalachari
Mahamana	Pt. Madan Mohan Malviya
Blue Turban	Manmohan Singh
Tabla Maestro	Zakir Hussain

Sarpanch	Neeraj Chopra
Deshratna/ Ajatshatru	Dr. Rajendra Prasad
Magnificent Mary	Mary Kom
Grand Old Man	Dadabhai Naoroji
Netaji	Subhash Chandra Bose
Young Turk	Chandrashekhar
Shaheed-e-Azam	Bhagat Singh
Jannayak	Karpuri Thakur
Queen of Melody	Lata Mangeshkar
Terminator	Jaspri Bumrah
Pure Heart	Mother Teresa
Yorker King	Arshdeep Singh
Dhing Express	Hima Das
Sparrow	Major General Rajinder Singh
Ash	R. Ashwin

United Nations Organisations (UNO)

- **Established** October 24, 1945.
- **Current members number**-193 (193rd country South Sudan).
- **Headquarters** New York.
- **Language** English, French, Chinese, Arabic, Russian and Spanish.
- **Symbol** The flag has a light blue background with the UN emblem in white, with two curved olive branches and a world map in the middle.



International Year declared by the United Nations

2023	International Year of Millets
2024	International Year of the Camelids
2025	International Year of Cooperatives
2026	International Year of Grasslands and Shepherds

Organs of UNO

General Assembly	■ All member countries have membership. Its session takes place at least once a year in the month of September in New York. It is also called the mini parliament of the world.
Security Council	■ It is a regulatory body which fulfills the responsibilities of the nation regarding world peace and security. ■ It has a total of 15 members-5 permanent members (America, Britain, China, France and Rome) and 10 temporary members (they are elected by the General Assembly and their tenure is of 2 years). Every permanent member has the right of veto.
Economic and Social Council (ECOSOC)	■ This council has 54 members, whose tenure is 3 years. 1/3 of its members (18) retire every year. ■ Its work includes matters of international importance except the politics of war and arms. Its meetings are held twice a year, in New York in April and in Geneva in July.
International Court of Justice (ICJ)	■ It was established in the Hague (Netherlands) in 1945 to settle disputes between countries. It has 15 members, who are elected by the General Assembly and the Security Council. ■ The tenure of judges is 9 years. 5 judges retire every 3 years. Its languages are French and English.
Trusteeship Council	■ The responsibility of the United Nations regarding the administration and security of nations that were unable to gain independence even after the end of the Second World War, through this Council. ■ After the last Trust Territory, Palau, gained independence in 1994, the Trusteeship Council almost ceased functioning on November 1, 1994.
Secretariat	■ This administrative body is headquartered in New York. ■ The Secretariat consists of a Secretary General and other staff. The Secretary General is appointed by the General Assembly on the recommendation of the Security Council for a term of 5 years.

Note The number of founding countries of the United Nations was 51. Only 50 nations signed the Charter on June 26, 1945. The 51st nation to sign it later was Poland.

Indian Defense Technology

Indian Missile Program

Integrated Guided Missile Development Programme (IGMDP) was launched in July 1983.

Objective To develop a range of guided missiles for defense purposes. Under this, five missiles were developed Prithvi, Trishul, Akash, Agni, Nag.

1 Prithvi

Surface-to-surface short-range ballistic missile

First Test – 1988
Pokhran, Rajasthan

Range – 40-250 km



2 Trishul

Short-range surface-to-air missile

First Test – 1988

Range – 500 m to 9 km



3 Akash

Medium-range surface-to-air missile

First Test – 1990

Range – 25 km



Defence Research & Development Organisation (DRDO)

Established 1958 in New Delhi.

Objective To carry out research and development in the defense sector, advanced technologies and missiles.

Director General Scientific Advisor to the Defence Minister.

Defence Production and Supply Department

In 1984, the Department of Defence Production and the Department of Defence Supplies were merged to form the Defence Production and Supply Department to streamline defense production and procurement processes.

4 Agni

Ground-based medium-range ballistic missile, including Agni-I, Agni-II, Agni-III, Agni-IV, and Agni-V, Agni V:

First Test – 2012

Range – 5000 km



5 Nag

Anti-tank guided missile

First Test – 1990

Range – 4 km, (works on 'fire and forget' policy)



Other Major Missiles

Missile	Type/Range	Warhead/Purpose
Dhanush	Ground-to-ground missile (350 km)	500 kg
Agni Prime	Surface-to-surface ballistic missile (1000-2000 km)	Capable of carrying a conventional or nuclear warhead
Rudram	Anti-radiation missile (200 km)	Indigenous missile designed and developed by DRDO to target enemy radar and communication systems
BrahMos	Supersonic ground-to-ground cruise missile (290 km)	300 kg, Supersonic cruise missile that can be launched from multiple platforms
Sagarika (K-15)	Submarine-launched ballistic missile (700 km)	Can be used in depths of the ocean
Shaurya	Surface-to-surface medium-range hypersonic ballistic missile (700 to 1900 km)	Up to 1000 kg, Hypersonic speed
Prahaar	Short-range surface-to-surface missile (150 to 500 km)	350 to 700 kg

Major Fighter Jets Helicopters Drones

Tejas

- Light Combat Aircraft (LCA)
- 4th Generation
- 2240 km/h (Mach 1.1)

Rafale

- Multirole Fighter Aircraft
- 4.5th Generation
- 1300 to 1900 km/h

Nishant

- Unmanned Aerial Vehicle (UAV)
- 200 km/h

Lakshya

- Target Drone
- 250 km/h

Dhruv

- Advanced Light Helicopter (ALH)
- 300 km/h

IL-78

- Air-to-Air Refueling Aircraft
- 800 km/h

Kali 5000

- Air Defence System

Major Submarines and Battleships

Ship Name	Features
INS Tushil (Guided Missile Corvette)	Part of the Kora-class corvette. Built for anti-surface, anti-submarine warfare. Equipped with surface-to-surface missiles and torpedoes.
INS Vikramaditya (Aircraft Carrier)	Aircraft Carrier (with a displacement of 45,000 tons). Can carry MiG-29K, Hawk, and ALH Dhruv aircraft. Powered by 4 boilers for propulsion.
INS Vikrant (Aircraft Carrier)	India's first indigenously built aircraft carrier. Displacement of 40,000 tons. Equipped with MiG-29K, Tejas fighters, and helicopters. CATOBAR (Catapult Assisted Take-Off But Arrested Recovery) system.
INS Mormugao (Destroyer)	Part of the Kolkata-class destroyer. Equipped with BrahMos missiles, AK-630, SAM systems. Designed for surface warfare, anti-aircraft, and anti-submarine operations.
INS Vager (Submarine)	Scorpène-class submarine. Equipped with Exocet anti-ship missiles, torpedoes. Air-independent propulsion for extended underwater operations.
INS Vagsheer (Submarine)	Scorpène-class submarine. Similar to INS Vager but with improved stealth. Capable of carrying out offensive operations and anti-submarine warfare.
INS Taragiri (Frigate)	Part of the Godavari-class frigate. Equipped with surface-to-air missiles and torpedoes. Primarily focused on anti-air and anti-surface warfare.
INS Surat (Destroyer)	Part of the Vishal-class destroyer. Equipped with BrahMos cruise missiles, anti-aircraft systems, and torpedoes. Focused on multi-role operations in naval combat.
INS Arihant (Nuclear-Powered Submarine)	Ballistic missile submarine (SSBN). Equipped with K-15 ballistic missiles and capable of carrying nuclear warheads. Part of India's nuclear triad, providing strategic deterrence. First indigenous nuclear submarine built by India.
INS Arighaat (Submarine)	Nuclear-powered submarine. Capable of carrying nuclear ballistic missiles. Integral part of India's strategic deterrence and nuclear triad.

Battle Tanks

Tank	Origin	Weight	Speed	Range
MBT Arjun	India	68 Tons	70 km/h (road), 40 km/h (off-road)	450 km
T-90 Bhishma	Russia	46.5 Tons	60 km/h (road), 45 km/h (off-road)	550 km

Indian Space Research

Indian National Committee for

- **Space Research (INCOSPAR)**
- **Formation** 1962
- **Founder** Dr. Vikram Sarabhai
- **ISRO Formation**
15th August, 1969
- Department of Space (DOS) was established in 1972 to manage space research and development.

Major Institutions of Indian Space Research

1. Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram, Kerala
2. Satish Dhawan Space Centre (SDSC), Sriharikota
3. Space Applications Centre (SAC), Ahmedabad, Gujrat
4. ISRO Telemetry, Tracking and Command Network (ISTRAC), Bengaluru, Karnataka
5. Master Control Facility (MCF), Hassan, Karnataka
6. Physical Research Laboratory (PRL), Ahmedabad, Gujarat
7. National Remote Sensing Agency (NRSA), Hyderabad, Telangana

Aditya L-1 Mission

It was launched on 2nd September, 2023 by launch vehicle PSLV-C57. It is first Indian solar mission to study solar magnetic storms and their effects on Earth's environment.

Mars Mission (Mangalyaan)

It was launched on 5th November, 2013 by PSLV-C25. It is India's first Mars mission; placed in orbit on 24th September, 2014. India is first country to succeed in the first attempt.

Chandrayaan I

It was launched on 22nd October, 2008 by launch vehicle PSLV-XL (PSLV-C11). It is India's first lunar mission to study the Moon's surface and water presence.

XPoSat Mission

It was launched on 1st January, 2024 by launch vehicle PSLV-C58. It was launched to study black holes and neutron stars.

First Satellite

Aryabhata was launched on 19th April 1975 by launch vehicle **Cosmos** (Soviet Union). It was experimental satellite launched from Baikonur.

Chandrayaan-III

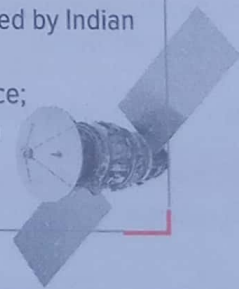
It was launched on 14 July, 2023 by launch vehicle LVM-3 (GSLV Mk III). It successfully landed on the Moon's south pole on 23rd August, 2023. India is first country to achieve this feat.

INSAT 3DS Mission

It was launched on 8th February, 2024 by launch vehicle GSLV-F14. It placed the INSAT-3DS meteorological satellite in Geostationary Transfer Orbit (GTO).

SpaDex Mission

It was launched on 30th December 2024 by launch vehicle PSLV-C60. It is a twin satellite mission developed by Indian Space Research Organisation (ISRO). It demonstrates docking and undocking in space; enhances technical capability for future human missions.



Indian Defence

Chief of Defence Staff (CDS)

- **Establishment** 2019
- **Position** Highest-ranking military officer (Army, Navy, Air Force) in India
- **First CDS** General Bipin Rawat



Indian Army Academy

- ▶ Indian Military Academy (IMA), Dehradun, Uttarakhand
- ▶ Officers Training Academy (OTA), Chennai, Tamil Nadu
- ▶ National Defence Academy (NDA), Pune, Maharashtra
- ▶ Army Training Command (ARTRAC), Mhow, Madhya Pradesh

Public Sector Defence Establishments

Public Establishment	Headquarters	Estd. in
Garden Reach Builders & Engineers Limited	Kolkata	1934
Bharat Electronics Limited (BEL)	Bengaluru	1954
Mazagon Dock Shipbuilders	Mumbai	1960
Hindustan Aeronautics Limited (HAL)	Bengaluru	1964
Goa Shipyard Limited	Vasco da Gama	1967
Bharat Dynamics Limited (BDL)	Hyderabad	1970
Mishra Dhatu Nigam Limited (MIDHANI)	Hyderabad	1973

Major Security Organisations

Organisation	Headquarters
Assam Rifles, 1835	Shillong, Meghalaya
Intelligence Bureau (IB), 1887	New Delhi
Central Reserve Police Force (CRPF), 1939	New Delhi
National Cadet Corps (NCC), 1948	New Delhi
Indo-Tibetan Border Police (ITBP), 1962	New Delhi

Organisation

Headquarters

Central Bureau of Investigation (CBI), 1963	New Delhi
Border Security Force (BSF), 1965	New Delhi
Central Industrial Security Force (CISF), 1969	New Delhi
Coast Guard, 1977	New Delhi
National Security Guard (NSG), 1986	New Delhi
National Crime Records Bureau (NCRB), 1986	New Delhi
Rapid Action Force (RAF), 1992	New Delhi
National Investigation Agency (NIA), 2008	New Delhi

Joint Military Exercises

Exercise Name	Countries Involved
Garuda Shakti (Army)	India-Indonesia
VINBAX (Army)	India-Vietnam
Vajra Prahar (Army)	India-USA
SIMBEX (Navy)	India-Singapore
Naseem-al-Bahr (Navy)	India-Oman
Malabar Exercise (Navy)	India-Australia, Japan, USA
KAZIND (Army)	India-Kazakhstan
Yudh Abhyas (Army)	India-USA
VARUNA (Navy)	India-France
Surya Kiran (Army)	India-Nepal
Mitra Shakti (Army)	India-Sri Lanka
Udara Shakti (Air Force)	India-Malaysia
Nomadic Elephant (Army)	India-Mongolia
Exercise Maitree (Army)	India-Thailand
HOPEX (Air Force)	India-Egypt
JIMEX (Navy)	India-Japan
Exercise DUSTLIK (Army)	India-Uzbekistan
IMT TRILAT (Navy)	India-Mozambique-Tanzania
Dharma Guardian (Army)	India-Japan
Desert Cyclone (Army)	India-UAE

Awards and Honours

Bharat Ratna

- Highest Civilian Award
- Started in - 1954
- Conferred for achievements in Field of Science, Literature, Arts, Public Services, Sports and social works
- **First Recipient** S. Radhakrishnan, Sir CV Raman and Chakravarti Rajagopalachari

Padma Awards

The award is given for exceptional and distinguished service in any field including service rendered by government servants. It is of three types

- **Padma Vibhushan** (1954) Second-highest civilian award.
First Recipient Satyendra Nath Bose
- **Padma Bhushan** (1954) Third-highest civilian award.
First Recipient Homi J. Bhabha
- **Padma Shri** (1954) Fourth-highest civilian award.
First Recipient Humayun Mirza

Literary Awards

- **Sahitya Akademi Award** (1954) It is given to the most outstanding books of literary merit published in any of the major Indian languages recognised by the Akademi.
First Recipient RK Narayan.
- **Vyas Samman** (1991) The award is given annually by the KK Birla Foundation and includes a cash payout of 4,00,000.
First Recipient Ram Vilas Sharma
- **Saraswati Samman** (1991) It is an annual award for outstanding prose or poetry literary works in any of the 22 languages of India.
First Recipient Harivansh Rai Bachchan
- **Jnanpith Award** (1961) This literary award presented annually by the Bharatiya Jnanpith to an author for their "outstanding contribution towards literature".
First Recipient G. Sankara Kurup

Gallantry Awards

Param Vir Chakra

Highest wartime gallantry award Started in 1950. Highest degree of valour in the presence of the enemy during war time.
First Recipient Major Somnath Sharma

Ashoka Chakra

Highest peacetime gallantry award 1952. It is awarded for bravery, courageous action or self-sacrifice away from the battle field.
First Recipient Havildar Bachittar Singh.

Vir Chakra

Third highest wartime gallantry awards 1947. Awarded for acts of gallantry in the presence of the enemy, whether on land or at sea or in the air.
First Recipient Bhim Chand

Mahavir Chakra

Awarded for acts of gallantry in the presence of the enemy, whether on land, at sea or in the air.
First Recipient Brigadier Rajinder Singh



Shaurya Chakra

Peacetime equivalent to Vir Chakra.
First Recipient Sepoy Ram Singh and Rifleman Til Bahadur Gurung.

Kirti Chakra

It is awarded for valour, courageous action or self-sacrifice away from the field of battle. **First Recipient** Mukhtiar Singh

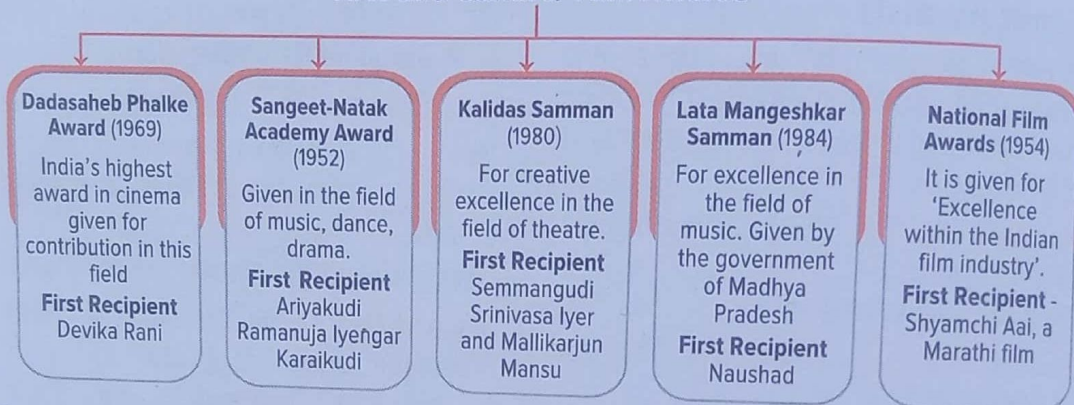
Rashtriyata Veerta Puraskar

These awards are a set of awards given annually to about 25 Indian children below 18 years of age for "meritorious acts of bravery against all odds." The awards are given by the Government of India and the Indian Council for Child Welfare.

Science and Technology Awards

Award	Field	Prize Money
Shanti Swarup Bhatnagar, 1958	It is given annually by the Council of Scientific and Industrial Research for outstanding research (applied or fundamental)	₹ 5 Lakh
Bhabha Award, 1954	This award is given every two years, jointly by the International Union of Pure and Applied Physics (IUPAP) and the Tata Institute of Fundamental Research (TIFR), in the field of Nuclear Energy.	₹ 2.5 Lakh
UNESCO Kalinga Award, 1952	It is given for the popularisation of Science. It was established by Biju Patnaik.	₹ 10 Lakh

Arts and Culture/ Film Awards



Sports Awards

Award	Field	First Recipient	Prize Money
Arjuna Award, 1961	Given to recognise outstanding achievement in sports.	Krishna Das	₹ 15 Lakh
Dronacharya Award, 1985	Given to the sports coaches for their outstanding contribution.	Bhalchandra Bhaskar Bhagwat	₹ 15 Lakh
Dhyan Chand Award, 2002	It is a Lifetime Achievement Award in Sports and Games in India.	Sahuraj Birajdar (Boxing), Ashok Diwan (Hockey), Aparna Ghosh (Basketball)	₹ 25 Lakh
Major Dhyan Chand Khel Ratna, 1991	It is the highest sport honour in India.	Vishwanathan Anand	₹ 25 Lakh

Other Important Awards

Award	Field	First Recipient	Prize Money
International Gandhi Peace Prize, 1995	The award is named after Mahatma Gandhi. It is awarded by the Government of India for contribution in Peace.	Julius Kamberage Nyerere	₹ 1 Crore
Indira Gandhi Peace Prize, 1986	Indira Gandhi Prize for Peace, Disarmament and Development, awarded annually to individuals or organisations in recognition of promoting international peace, development and a new international economic order.	Parliamentarians for Global Action.	₹ 25 Lakh
Jamnalal Bajaj Awards, 1978	It is given for promoting Gandhian values, community service and social development.	Jugatram Dave, Satish Chandra and Das Gupta	₹ 20 Lakh

International Awards

Nobel Prize

- **6 Fields of Nobel Prize**

Peace, Physics, Chemistry, Medicine, Literature, Economics

- **Prize Awarding Bodies**

Swedish Academy of Literature, Royal Swedish Academy of Sciences, Bank of Sweden, Committee of the Norwegian Parliament

- **Prize Money** SEK (Swedish Krona) 8.0 million

- **Awarded on** 10th December Every Year



Indian Nobel Laureates

Name	Field
Rabindranath Tagore, 1913	Literature (Gitanjali)
CV Raman, 1930	Physics (Raman Effect)
Har Gobind Khorana, 1968	Medicine (Genetic Code)
Mother Teresa, 1979	Peace
Subrahmanyan Chandrasekhar, 1983	Physics (Chandrasekhar's Limit)
Amartya Sen, 1998	Economics
Sir VS Naipaul, 2001	Literature
Venkatraman Ramakrishnan, 2009	Chemistry
Kailash Satyarthi, 2014	Peace
Abhijit Banerjee, 2019	Economics

Ramon Magsaysay Award

- It is awarded for outstanding contributions in six categories of government. Service, public service and other fields (Given to Asian Individuals).
- **Presented by** Ramon Magsaysay Award Foundation
- **Country** Philippines
- **First awarded** 1957
- It is also known as **Nobel Prize of Asia**.

Literary Awards

Pulitzer Prize

- Awarded for - Excellence in newspaper journalism, literary achievements and musical composition
- Presented by - Columbia University
- Country - United States
- First awarded - 1917

Man Booker Prize

- Awarded for - Best full-length English Novel
- Presented by - Man Group
- Country - Commonwealth of Nations, Ireland and Zimbabwe
- First awarded - 1968

Man Booker International Prize

- Awarded for - Best English (or available for translation into English) fiction
- Presented by - Man Group
- Country - United Kingdom
- First Awarded - 2005
- Indian Recipient - Geetanjali Shree (Tomb of Sand 2022)

Film and Music Awards



Oscar Awards

Excellence in cinematic achievements. Academy of Motion Picture Arts and Sciences

First awarded 16th May, 1929

Presented by Academy of Motion Picture Arts and Sciences

Grammy Awards

Outstanding achievements in the music industry. National Academy of Recording Arts and Sciences

First awarded 1959

Presented by National Academy of Recording Arts and Sciences



Olympic Games

• First Olympics Games	Olympia
• Modern Olympic Games	Athens (1896)
• Father of Modern Olympic Games	Baron Pierre de Coubertin
• Organisation Body	International Olympic Committee
• Motto	Faster, Higher, Stronger - Together
• Number of coloured circle in Flag	Five
• Maximum medals won by an individual in Olympics	Michael Phelps
• 2028 Olympic Games	Los Angeles (Proposed)

India at Olympics

India participation in Olympics for the first time	1900
First Indian to represent India in Olympic	Norman Pritchard
First Indian of Independent India to win medal in Olympic	KD Jadhav (Helsinki, 1952)
Total Gold medals won by Indian Hockey Team in Olympics	8
First Indian to win an individual Gold medal	Abhinav Bindra in Beijing 2008
First Indian Woman to win a Silver medal in Olympics	PV Sindhu in Rio 2016, Olympics

Medal Winners in Olympics after 1900s

Atlanta, 1996 (1)	
Leander Paes	Tennis (Bronze)
Sydney, 2000 (1)	
Karnam Malleswari	Weightlifting (Bronze)
Athens, 2004 (1)	
Rajyawardhan Singh Rathore	Shooting (Silver)
Beijing, 2008 (3)	
Abhinav Bindra	Shooting (Gold)
Vijendra Singh	Boxing (Bronze)
Sushil Kumar	Wrestling (Bronze)

London, 2012 (6)

Vijay Kumar	Shooting (Silver)
Sushil Kumar	Wrestling (Silver)
Saina Nehwal	Badminton (Bronze)
Mary Kom	Boxing (Bronze)
Gagan Narang	Shooting (Bronze)
Yogeshwar Dutt	Wrestling (Bronze)

Rio de Janeiro, 2016 (2)

PV Sindhu	Badminton (Silver)
Sakshi Malik	Wrestling (Bronze)

Tokyo, 2020 (7)

Neeraj Chopra	Athletics (Gold)
Saikhom Mirabai Chanu	Weightlifting (Silver)
Ravi Dahiya	Wrestling (Silver)
PV Sindhu	Badminton (Bronze)
Lovlina Borgohain	Boxing (Bronze)
Field Hockey Team (Men's)	Hockey (Bronze)
Bajrang Puniya	Wrestling (Bronze)

Paris, 2024 (6)

Neeraj Chopra	Athletics (Silver)
Manu Bhaker	Shooting (Bronze)
Manu Bhaker and Sarabjot Singh	Shooting (Bronze)
Swapnil Kusale	Shooting (Bronze)
Field Hockey Team (Men's)	Hockey (Bronze)
Aman Sehrawat	Wrestling (Bronze)

SAF Games

'SAF Games' were started with the objective of developing cooperation and friendship among regional players in South Asia. It is organised every two years.

- First time held in 1984
- First venue - Kathmandu, Nepal
- First Winter SAF Games were held in - Auli, Uttarakhand (2011)
- Number of participating countries-seven
- Number of games organised - Four

Commonwealth Games

- First Commonwealth Games held in 1930 Hamilton (Canada).
- Melville Marks Robinson is considered Father of 'Commonwealth Games'.
- Its earlier names were 'British Empire Games', 'British Empire and Commonwealth Games'.
- It is held every 4 years.
- First TV Broadcast - Vancouver (1954)
- Slogan - Humanity, Equality, Destiny
- 2022 Commonwealth Games (22nd) - Birmingham, Britain
- 2026 Commonwealth Games (23rd) - Glasgow, Scotland

Asian Games

First Asian Games	1951
Father of Asian Games	Guru Dutt Sondhi
Organising body	Olympic Council of Asia
Slogan	Diversity Shines Here
Motto	Ever Onward
2022 Asian Games	Hangzhou (China)
2026 Asian Games	Nagoya (Japan)

Cricket

- The record for scoring double centuries in ODI cricket is held by five Indian players - Sachin Tendulkar (200), Virender Sehwag (219), Rohit Sharma (209, 208*, 264), Ishan Kishan (210) and Shubman Gill (208).
- Rohit Sharma has scored three double centuries.
- Brian Lara holds the individual record for most runs in Test cricket (400).
- Virat Kohli holds the record for scoring the most centuries in ODIs.

Cricket World Cup

Introduced by	England
Governing body	International Cricket Council (ICC) founded in 1909
Headquarters	Dubai, United Arab Emirates
Overs	50
First World Cup	England (1975)

Most World Cup Title	Australia (6 times), India and West Indies (2 times)
2027 (Hosts)	South Africa, Zimbabwe and Namibia
2031 (Hosts)	India and Bangladesh

T-20 World Cup

First T-20 World Cup	South Africa (2007)
First Winner	India
Maximum Titles	India (2007, 2024), West Indies (2012, 2016), England (2010, 2022)
2026 Hosts	India and Sri Lanka
2028 Hosts	Australia and New Zealand
2030 Hosts	England, Ireland and Scotland

Hockey World Cup

First Hockey World Cup (Male)	Barcelona, Spain (1971)
First Hockey World Cup (Female)	Mandelieu, France (1974)
Most Titles (Male)	Pakistan (4 times)
2026 Host	Belgium, Netherlands

India won the title once in 1975, held in Kuala Lumpur.

Football World Cup

Modern football originated in	Britain
Governing Body	International Federation of Association Football founded in 1904
Headquarters	Zurich, Switzerland
FIFA World Cup	Uruguay (1930)
First FIFA World Cup (Male)	
Winner of First FIFA World Cup (Male)	Uruguay
First FIFA World Cup (Female)	China (1991)
Winner of First FIFA World Cup (Female)	USA
Most Titles	Brazil (5 Times)
2026 hosts	USA, Mexico and Canada

Lawn Tennis (Grand Slam)

- There are four championships under the Grand Slam.
 - Australian Open - Artificial Turf (Hard Court)
 - French Open - Red Clay Courts
 - US Open - Artificial Turf (Hard Court)
 - Wimbledon - Grass Court

National Games

- Started- 1924 (Lahore) (Held every two years)
- Modern National Games started in the year 1985 in Madras, till now National Games have been organised 37 times.
- 36th National Games 2022 - Gujarat
- 37th National Games 2023 - Goa
- 38th National Games 2025 - Uttarakhand

Khelo India Youth Games

- It is a national level sports competition organised every year by the Ministry of Youth Affairs and Sports, Government of India since the year 2018.
- Held in January or February in Under-17 and Under-21 categories.
- Its sixth edition held in Tamil Nadu, Maharashtra stood first with 158 medals.
- To be hosted by Bihar in the year 2025.

National Symbols

National Emblem

Lion Capital of Ashoka

Four lions are pictured on the summit of an Ashokan pillar at Sarnath, near Varanasi, in the Uttar Pradesh state.

It was designated as National Emblem on 26th January, 1950.



National Flag

Tiranga

It was adopted by Constituent Assembly on 22nd July, 1947. Its dimension is 3 : 2.



National Anthem - Jana Gana

Mana It was written by renowned Indian poet and Nobel laureate Rabindranath Tagore. It was performed for the first time on 27th December, 1911.

National Sports - There is no officially recognised National Sports of India

National Flower - Lotus

(*Nelumbo nucifera*)

It is light pink colour and symbolises spirituality, knowledge and purity of heart and mind.



National Song Vande Mataram

It was written by Bankim Chandra Chatterjee for his Bengali book 'Anand Math.'

National Calendar

Saka Calendar

It signifies the history of the country and symbolises the Golden era of India.



National Animal

Royal Bengal Tiger (*Panthera tigris*)

It is well-recognised for his royal grace, prodigious grandeur and tremendous strength. Eight native species of tigers may be found in India, which is home to more than half of the World's tiger population.



National Bird - Indian Peacock (*Pavo cristatus*)

Peacocks have long been a part of Indian mythology and a symbol of monarchy. It symbolises spirituality, fruitfulness, wealth, knowledge and illumination, along with purity of heart and mind.



Aquatic Animal - Ganges River

Dolphin (Gangetic Dolphin) Due to a decline in dolphin population over the previous few years, it is recognised as the country's official aquatic animal on 18 May, 2010.



National Fruit Mango

(*Mangifera indica*)

Mangoes are the most widely cultivated fruits in the tropical area of the world and are native to India.



National Tree Banyan

(*Ficus bengalensis*)

The Banyan, a member of the fig family, spread over a broad region, takes root and continues to live and regenerate for thousands of years.



National Heritage Animal

Indian Elephant

The elephants are on the verge of being extinct therefore the protective measure was taken and the Indian Elephant was declared a national heritage animal in October 2010.



National River Ganga (*Ganges*)

It was officially declared as the national river on 4th November, 2008, by the then Prime Minister of India, Manmohan Singh. It is longest river in India with length of 2525 km.

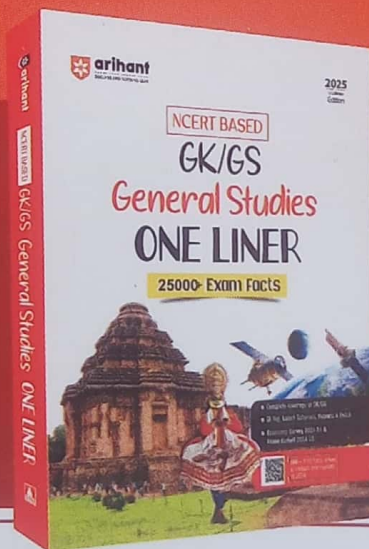


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